



The 7th Inning Stretch

Maricopa County

September 17, 2018

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**Will the national economy
continue to grow?
-Yes**





**Will it continue to grow
above 3%?**

-Probably not for very long.



Strong Economy

- **Tax cuts helped a lot**
- **Continued fiscal stimulus**
- **Trade war unlikely**
- **Strong plant and equipment spending**
- **few obvious imbalances**



**Too early to tell how much
of a slowdown it will be.**

**A Recession will happen at
some point but not soon.**



**Right now imbalances
seem relatively mild.**



**Strong economy (strong
consumer spending,
business investment and
exports) lead to:**



Strong Growth in Demand



Strong Labor Market



Lower Unemployment



Higher Wages



Higher Rates of Inflation



Fed Tightening

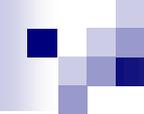


Slower Growth

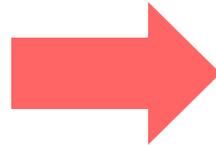


Fewer Jobs





**Quantitative
Easing**



**Quantitative
Tightening**



Quantitative Easing Versus Quantitative Tightening

- Bad for asset prices
- Higher short term rates
- Higher long term rates
- Flattening of the Yield Curve
- Cap rates increase
- Companies may delay investment



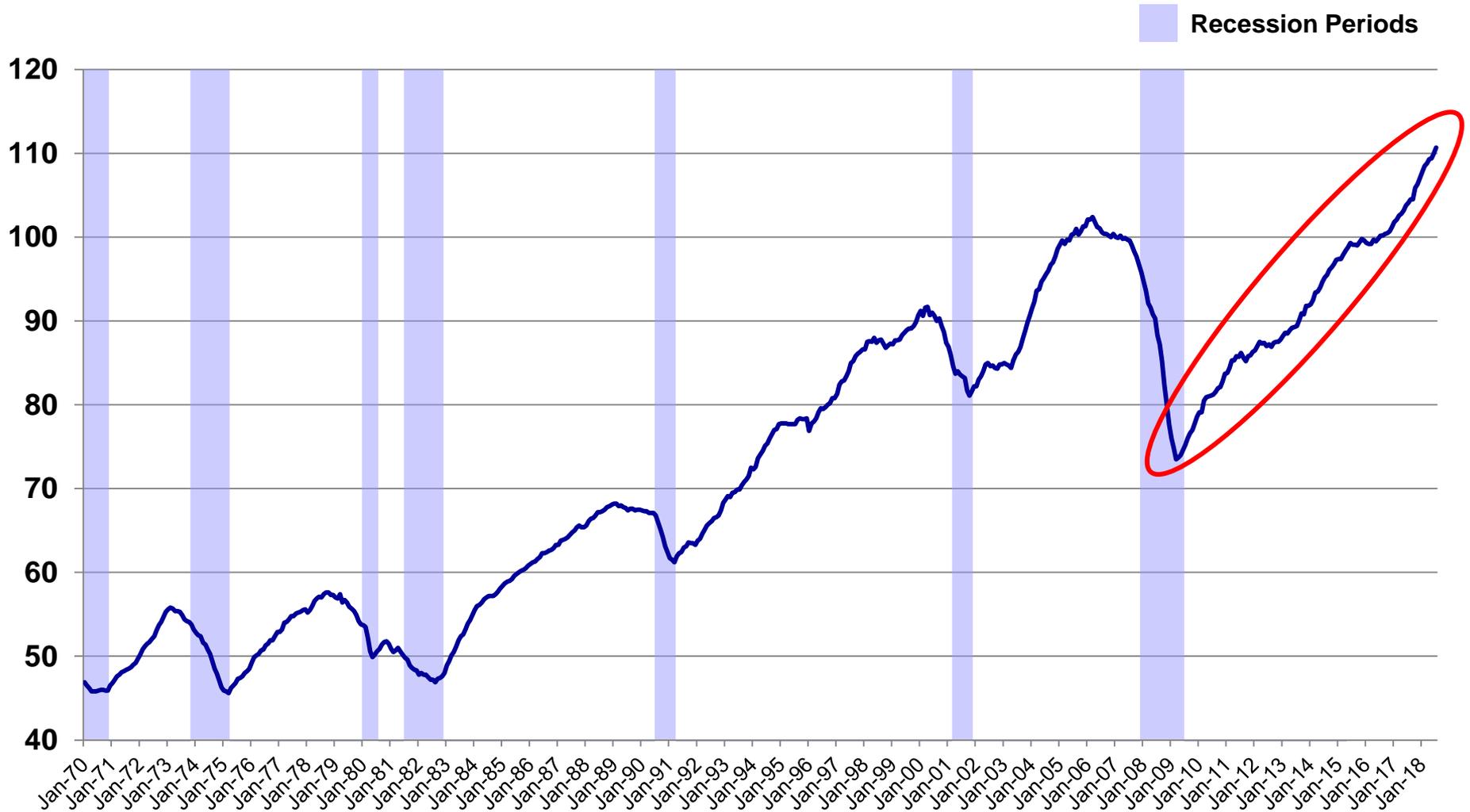
Where do we stand?



U.S. Leading Indicators

1970 – 2018*

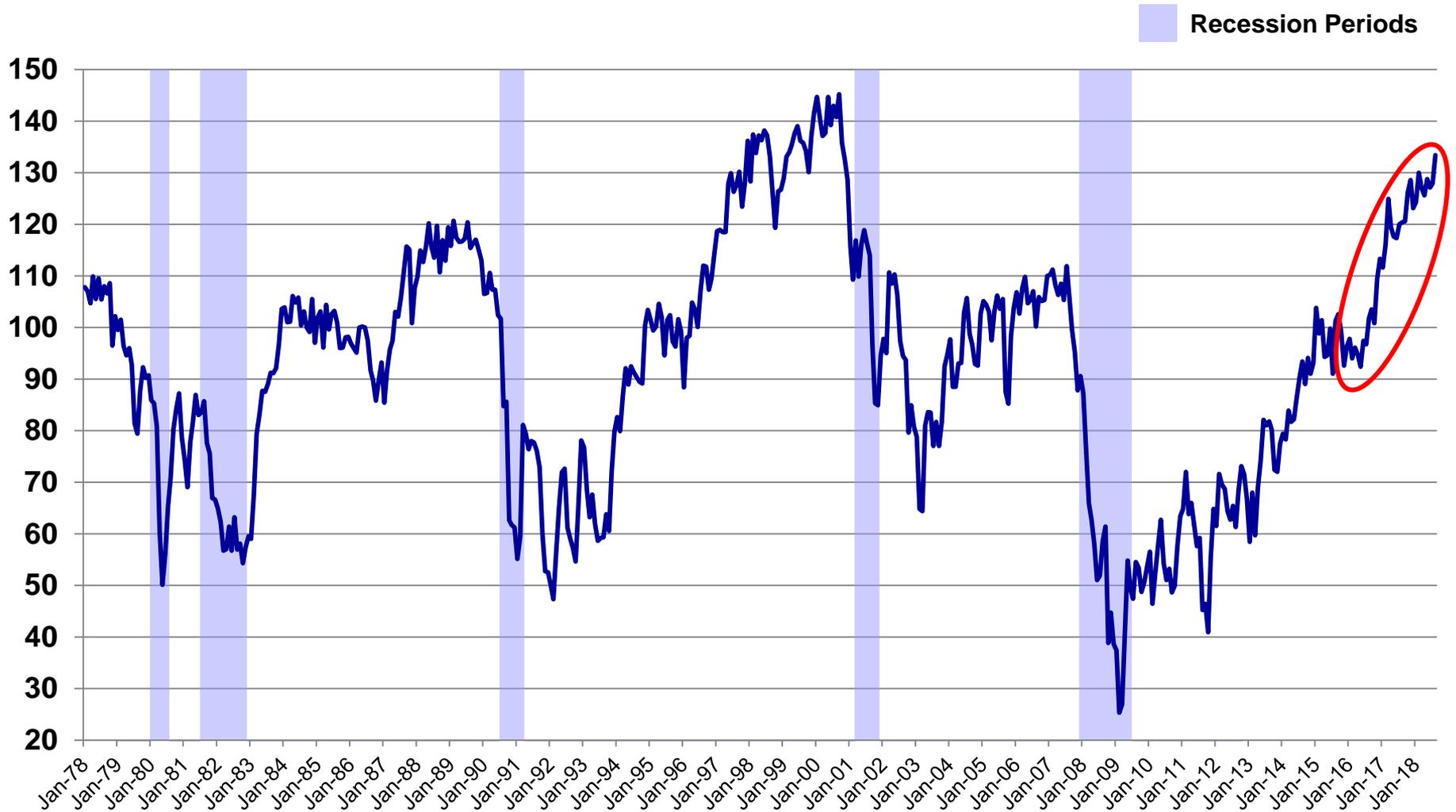
Source: The Conference Board



Consumer Confidence

1978 – 2018*

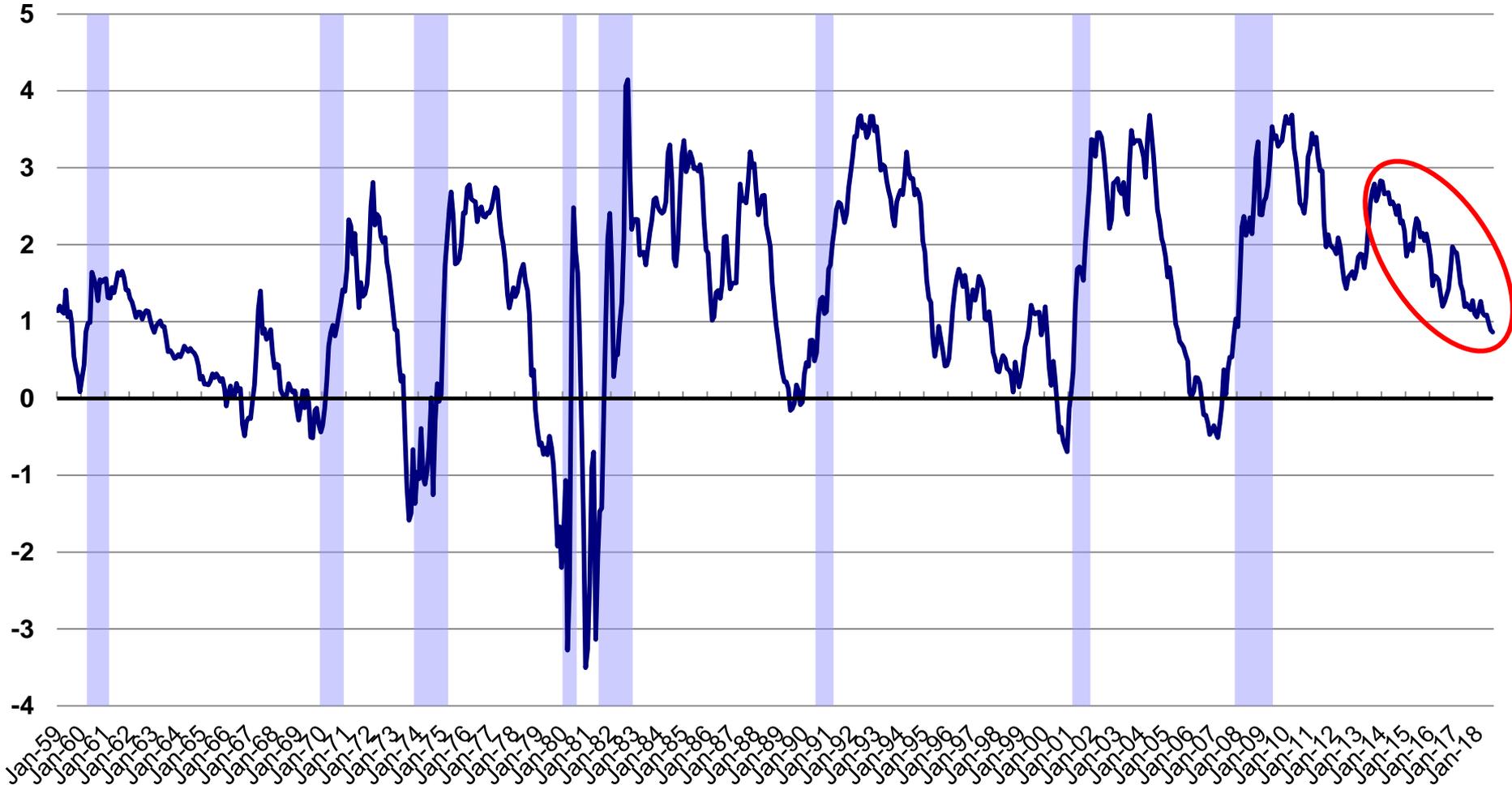
Source: The Conference Board



Treasury Spread: 10 year bond rate less 3 month bill rate 1959 – 2018*

■ Recession Periods

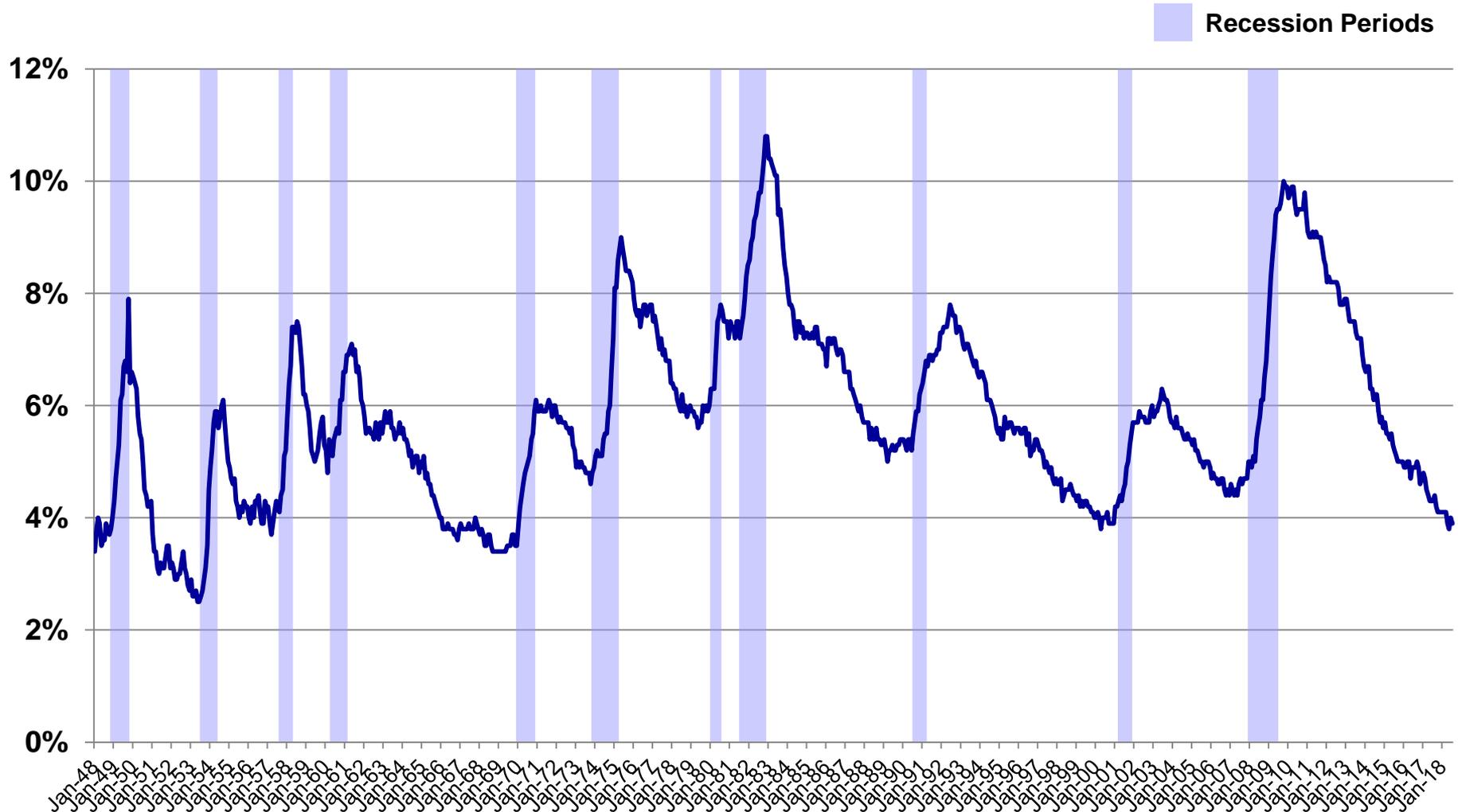
Source: Federal Reserve Bank of New York



U.S. Unemployment Rate

1948 – 2018*

Source: Bureau of Labor Statistics



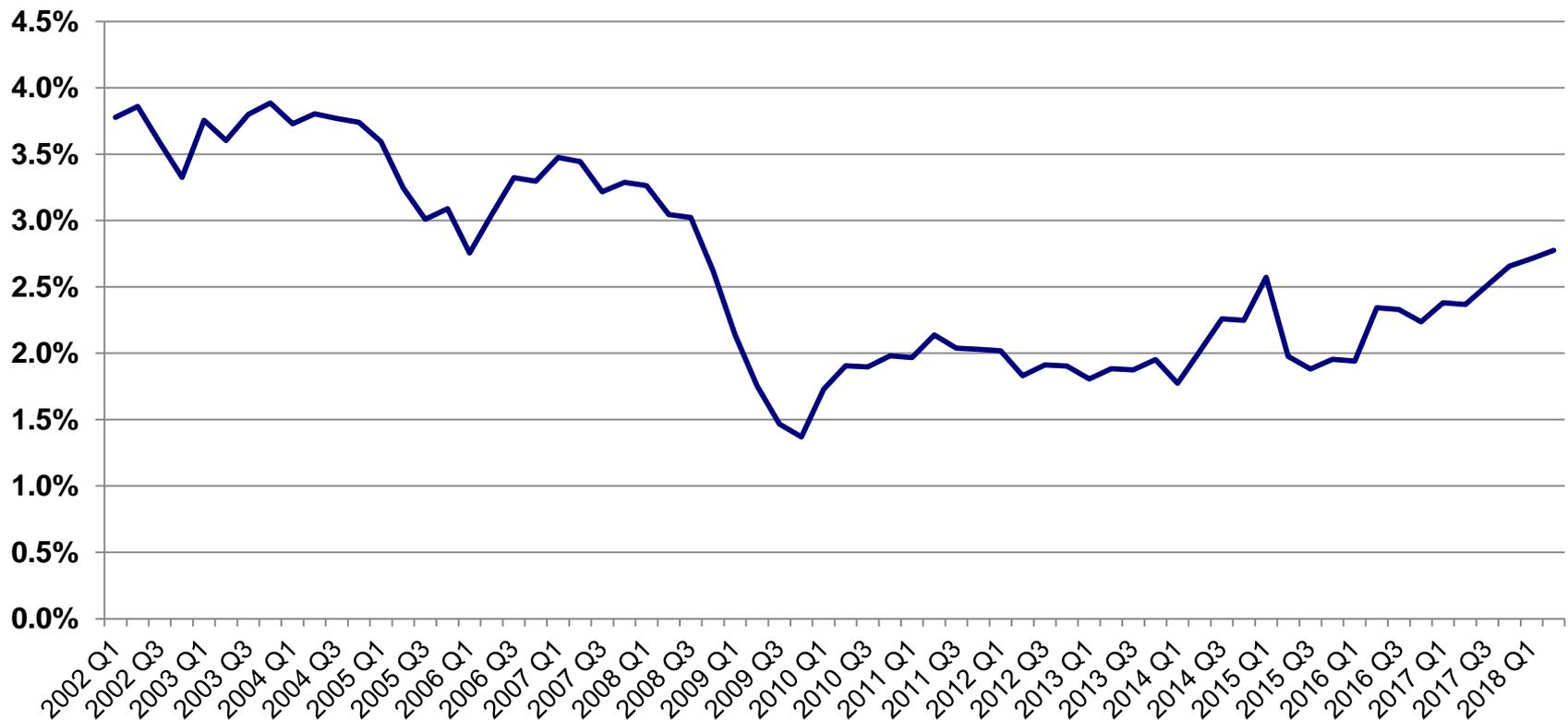
Recession Periods



Employment Cost Index

2002-2018*

Source: Bureau of Labor Statistics

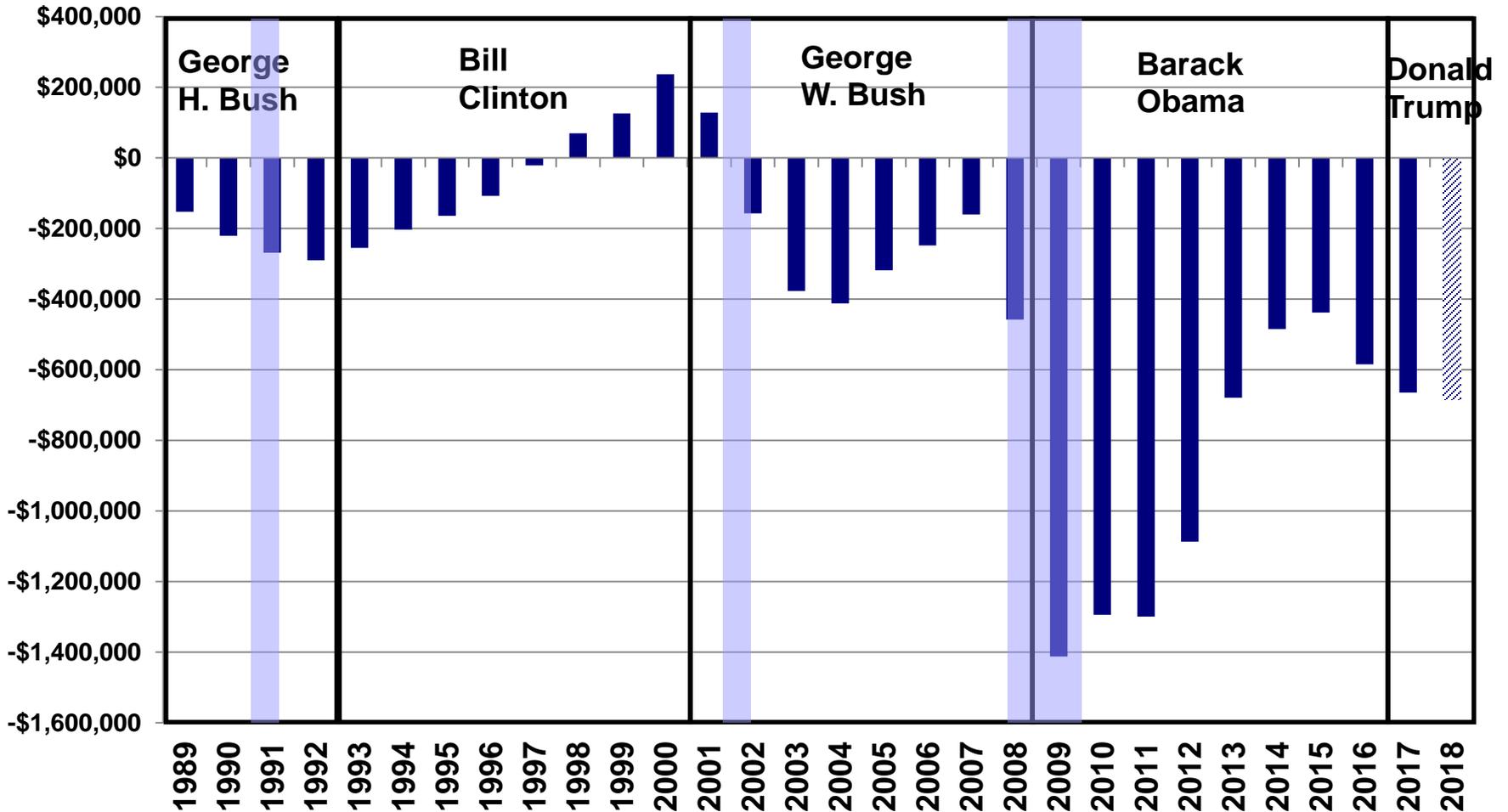


Federal Surplus or Deficit FY 1989-2018

Source: U.S. Office of Management and Budget

Recession Periods

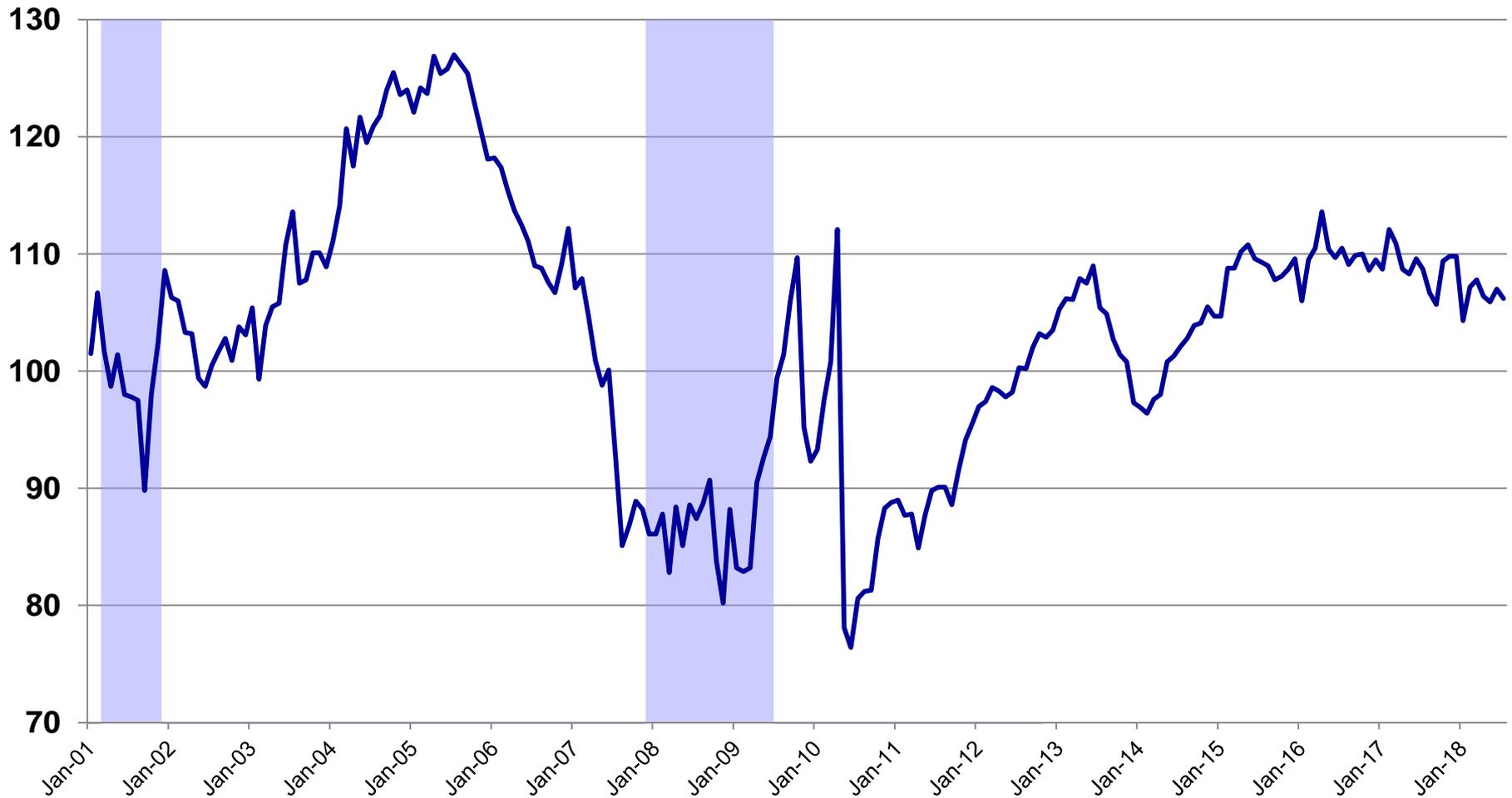
(Millions)



Pending Home Sale Index 2001-2018*

Source: National Association of Realtors

Recession Periods



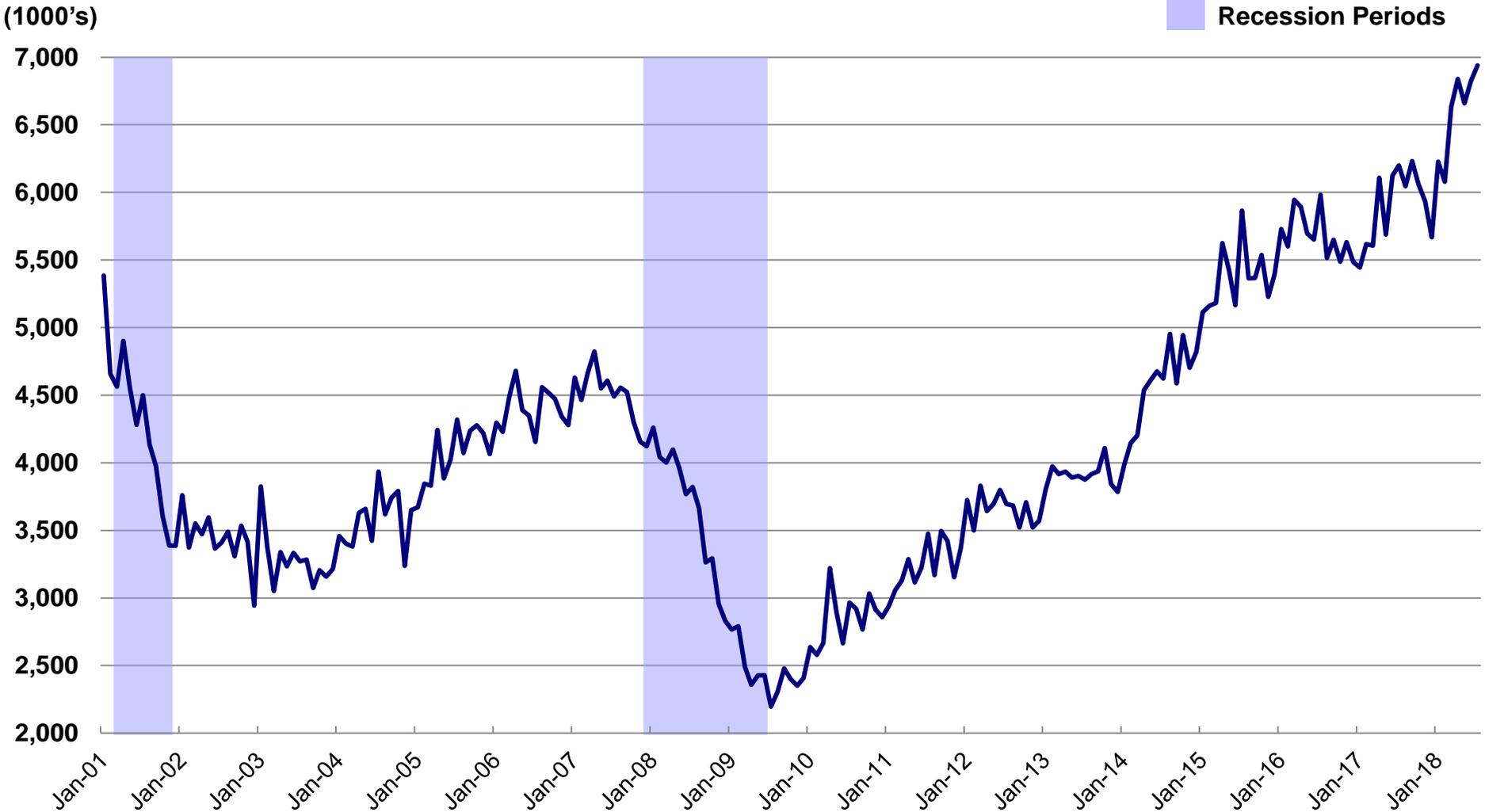
What keeps me up at night?



Job Openings 2001 – 2018*

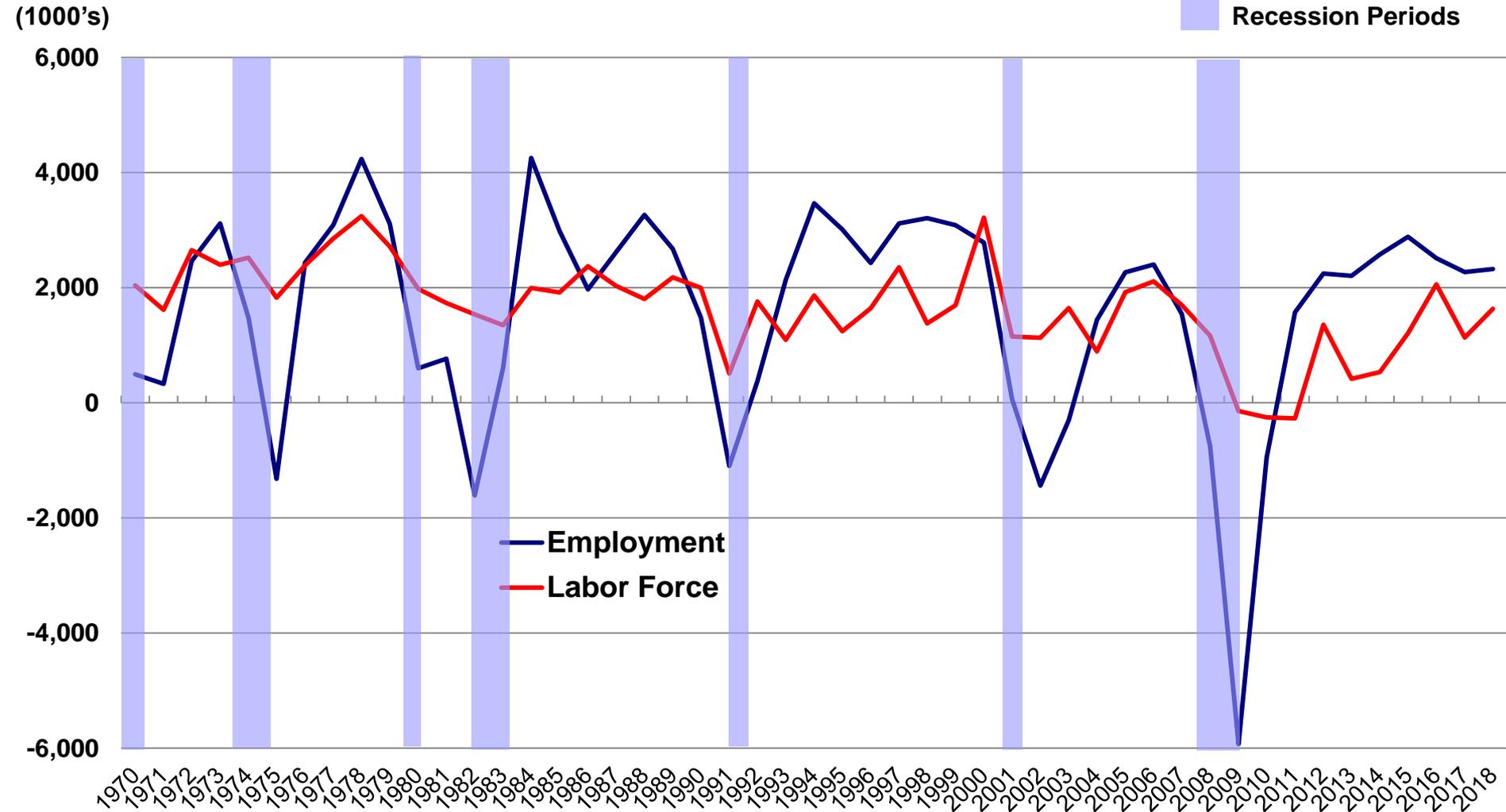
Source: Bureau of Labor Statistics

Recession Periods



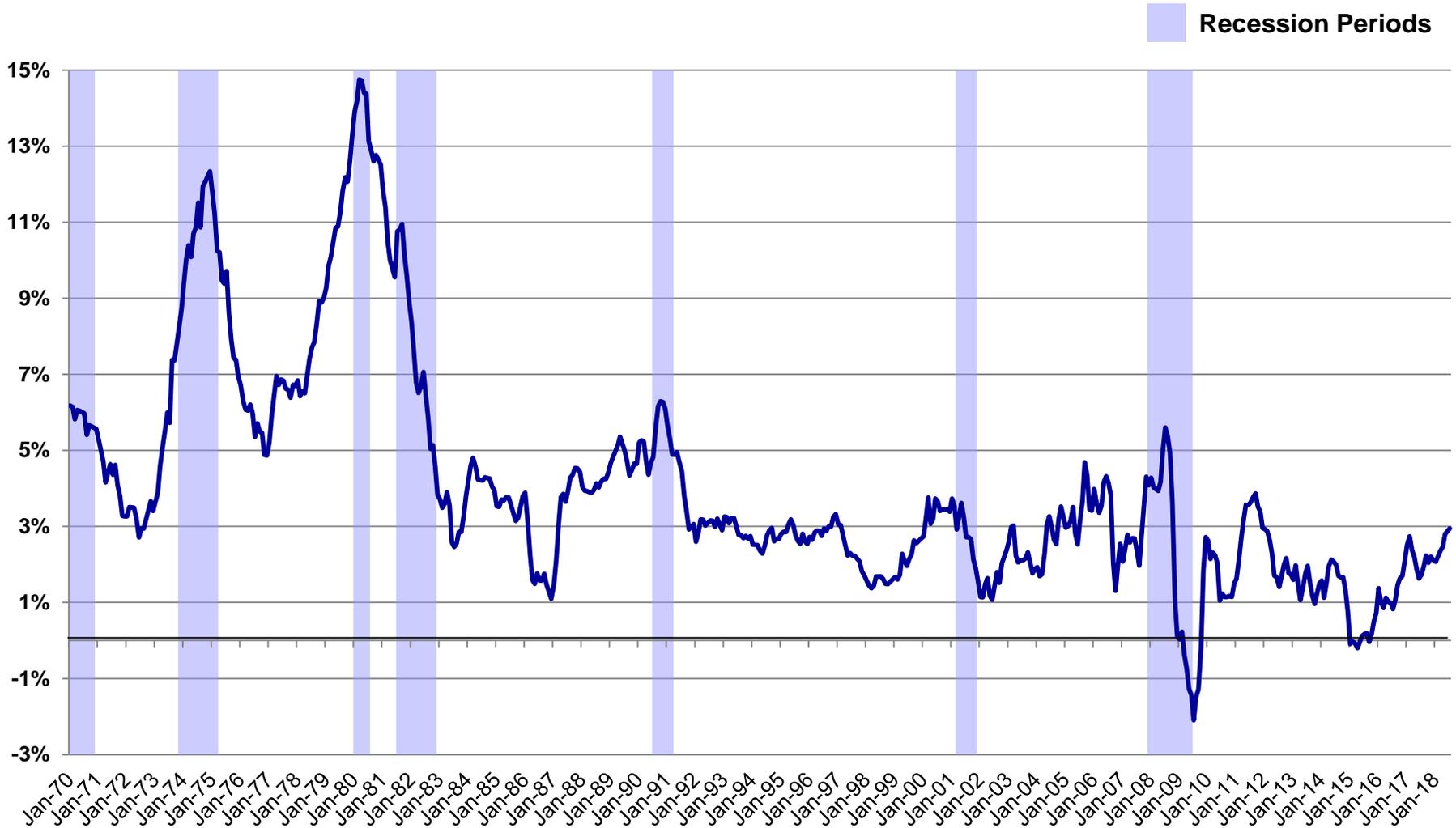
Employment Versus Labor Force Growth 1970–2018*

Source: Bureau of Labor Statistics



U.S. Consumer Price Index Annual Percent Growth 1970 – 2018*

Source: Bureau of Labor Statistics



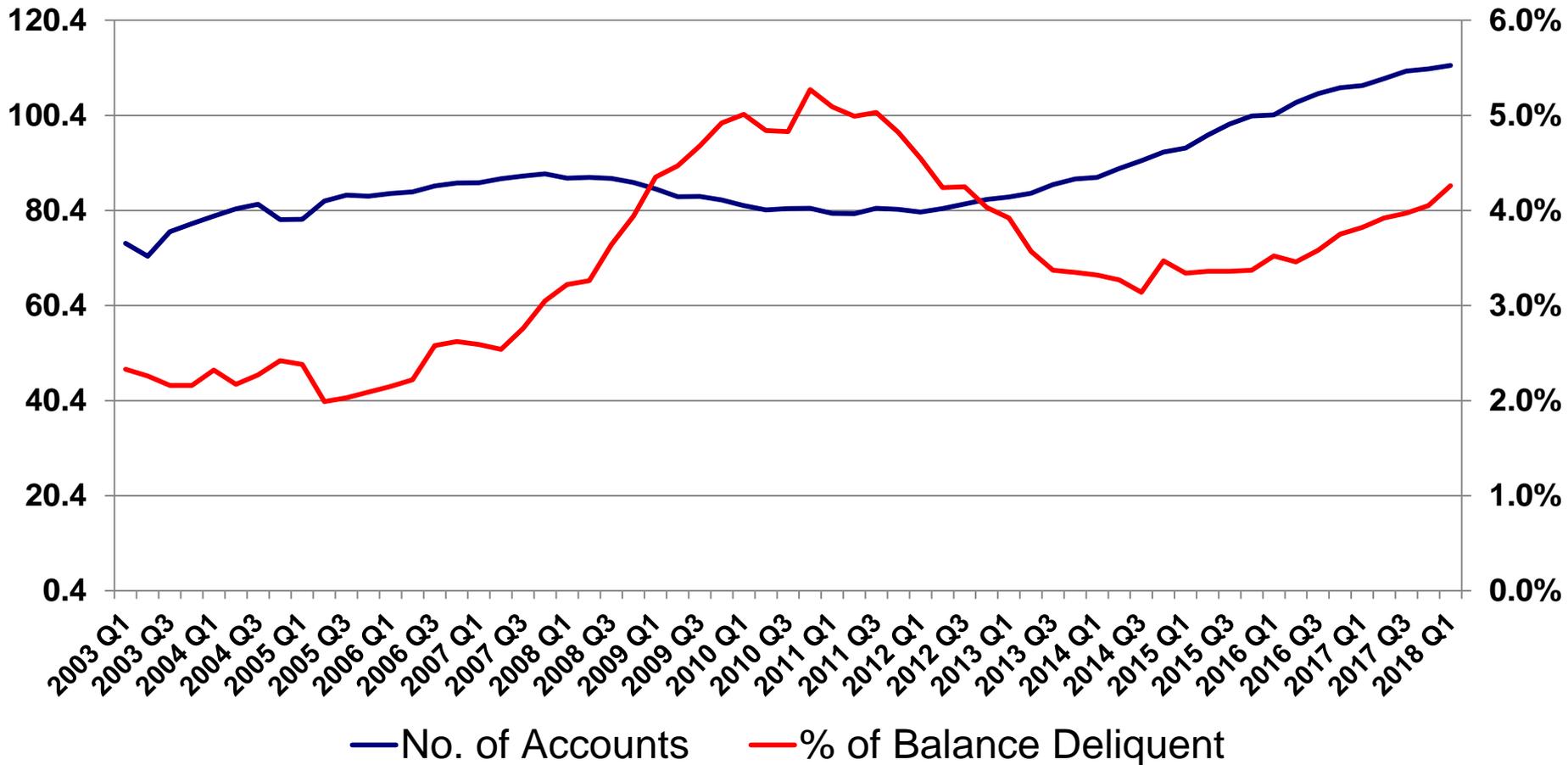
Recession Periods



Auto Loans

Source: New York Fed Consumer Credit Panel/Equifax

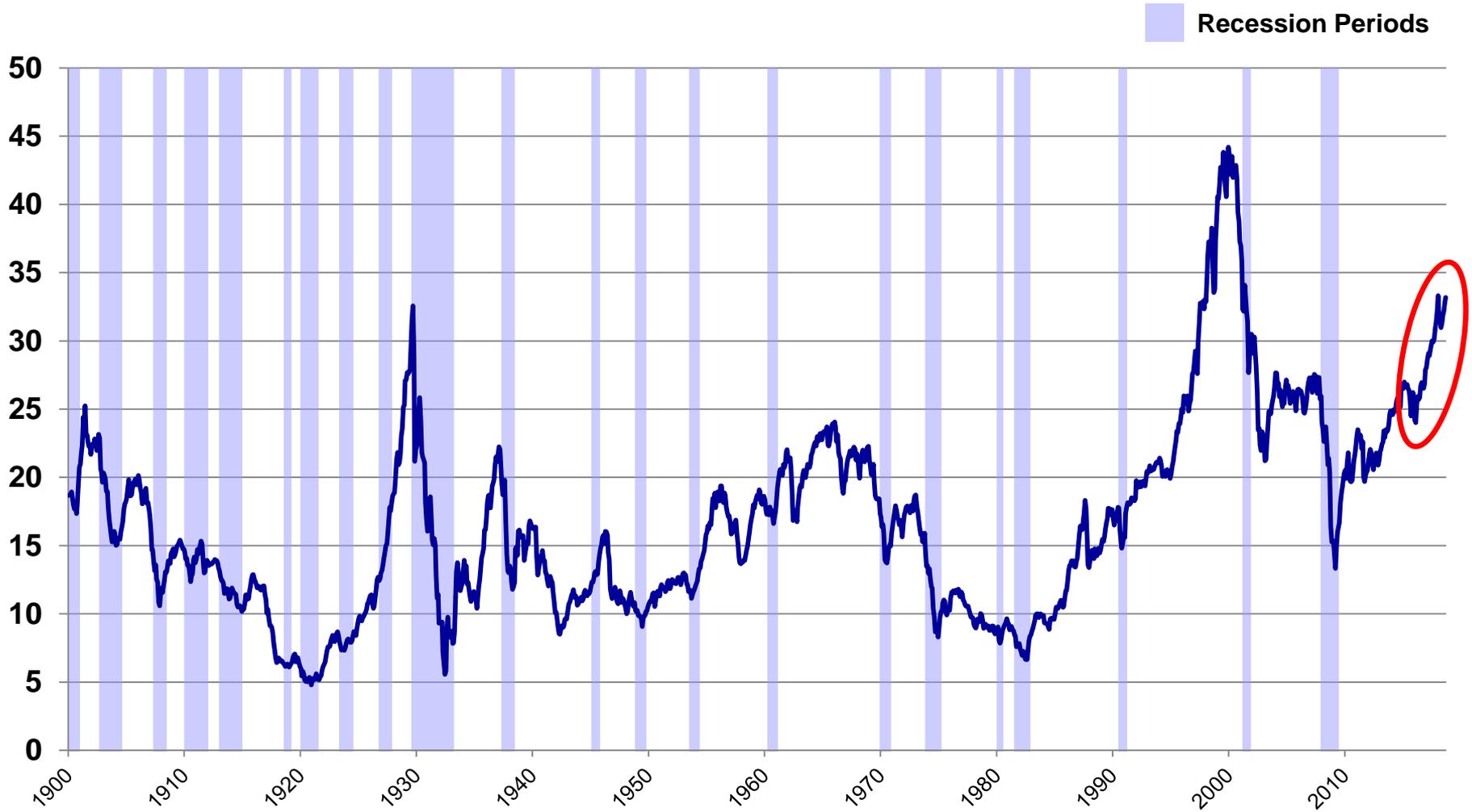
(Millions)



Cyclically Adjusted PE Ratio**

1950 – 2018*

Source: Robert Shiller, Yale University



Effects of a Trade War

1. Higher prices on inputs
2. Jobs? Depends on structure.
Probably a minor plus
3. Intellectual Property Rights

Will have a relatively minor effect
on U.S. economy



Trade War or Negotiation?

- 23% of Chinese Exports end up in the U.S.
- 20% of Chinese GDP is exports
- 8% of U.S. exports end up in China.
- <10% of U.S. GDP is exports



Trade War or Negotiation?

- So, 4.6% of China's economy depends on exports to the U.S
- 0.7% of U.S. economy depends on exports to China



Trade War or Negotiation?

- China needs exports to keep jobs.
- They probably don't want a U.S. Recession.

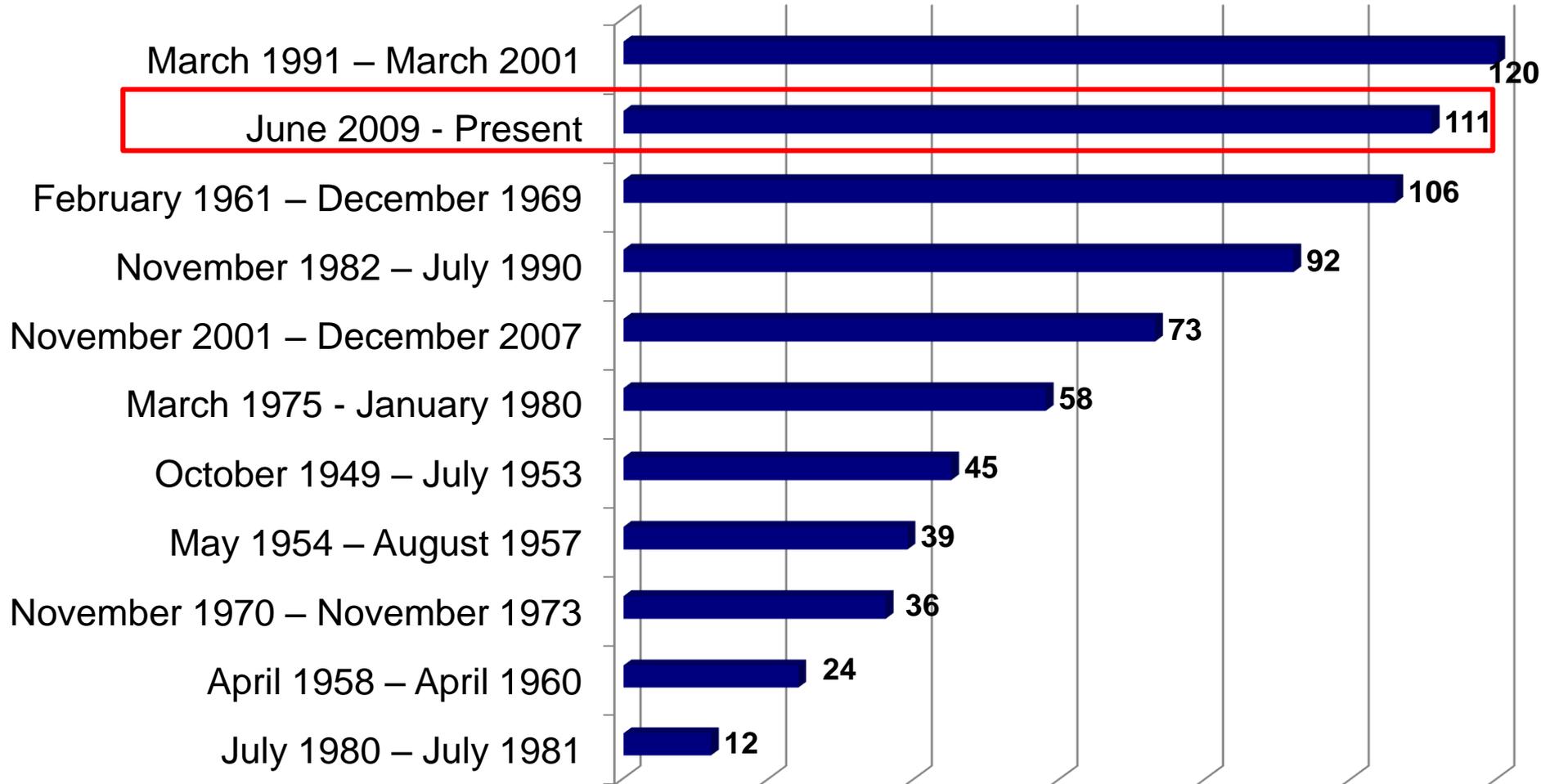


This Cycle is No Spring Chicken



U.S. BUSINESS CYCLE EXPANSIONS

Source: National Bureau of Economic Research



**So, where does this leave
us?**



**2019 will probably still be a
good year.**



Tax cuts, deficit spending and plant & equipment spending should keep things going nicely.



**Probability of a recession still
relatively low**



**We're probably in the 8th
inning**





Arizona & Maricopa County

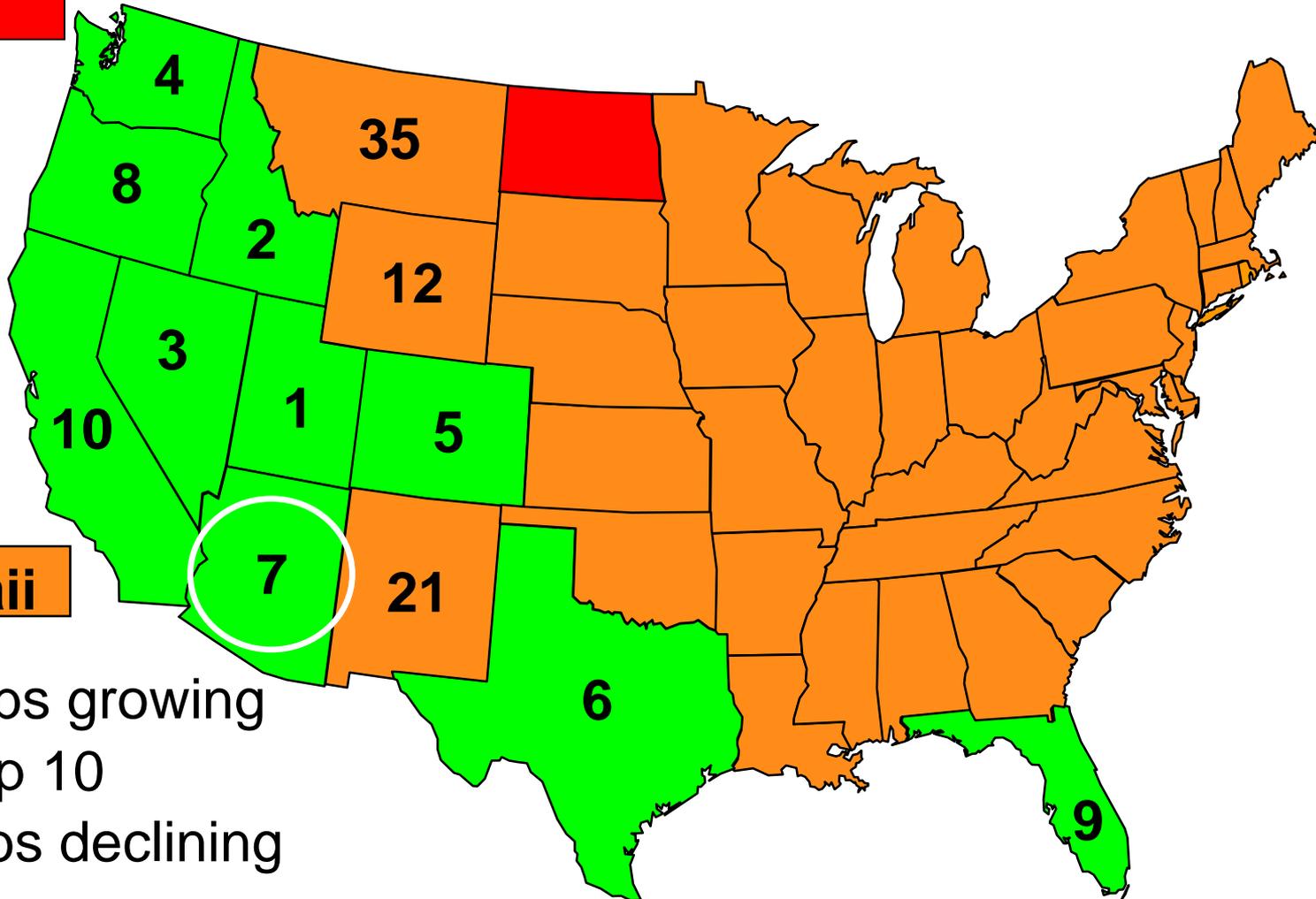


Job Growth 2018

YTD July 2018 vs. YTD July 2017

Source: U.S. BLS

Alaska
49



19

Hawaii

- Jobs growing
- Top 10
- Jobs declining



Arizona Employment Growth

Arizona's Rank Out of 50 States

Source: Arizona State University, U.S. Bureau of Labor Statistics

Year	Rank
1997	2
1998	1
1999	2
2000	5
2001	9
2002	10
2003	4
2004	2
2005	2
2006	2
2007	17

Year	Rank
2008	46
2009	49
2010	49
2011	27
2012	9
2013	9
2014	18
2015	11
2016	7
2017	5
2018*	7



Employment Growth

From Bottom of Recession to Now

Source: BLS

Area	% Change	% of Arizona Growth	2017 Annual Wages
United States	13.9%		\$55,331
Arizona	16.9%	100.0%	\$49,751
Maricopa County	20.5%	84.2%	\$52,377
Pima County	5.9%	5.2%	\$43,591
Balance of State	11.3%	10.6%	\$37,581

Note: Wages for Private industries
 Data not seasonality adjusted
 Bottom of Recession Sept. 2010 to July 2018;



Phoenix-Mesa-Scottsdale Employment Growth

(Ranking among all metro areas greater than 1,000,000)

Source: Arizona State University, U.S. Bureau of Labor Statistics

Year	Rank	# MSA's
1997	2	22
1998	1	23
1999	3	24
2000	7	25
2001	7	26
2002	5	25
2003	3	25
2004	3	25
2005	1	26
2006	1	27
2007	10	29

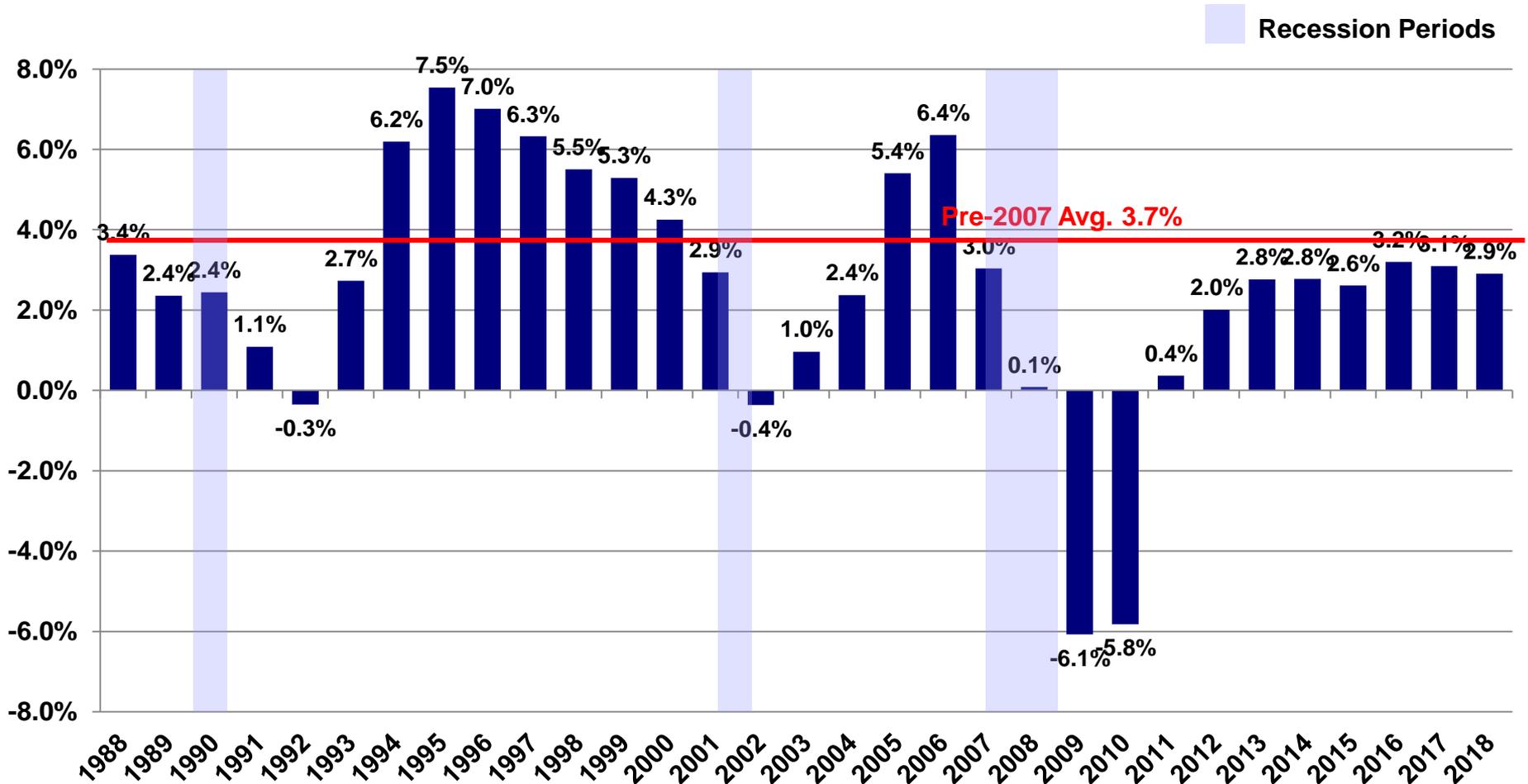
Year	Rank	# MSA's
2008	25	29
2009	23	24
2010	23	23
2011	14	25
2012	10	28
2013	7	29
2014	15	31
2015	10	32
2016	7	34
2017	5	34
2018*	7	34



Maricopa County Employment*

Annual Percent Change FY1988–2019**

Source: Office of Economic Opportunity

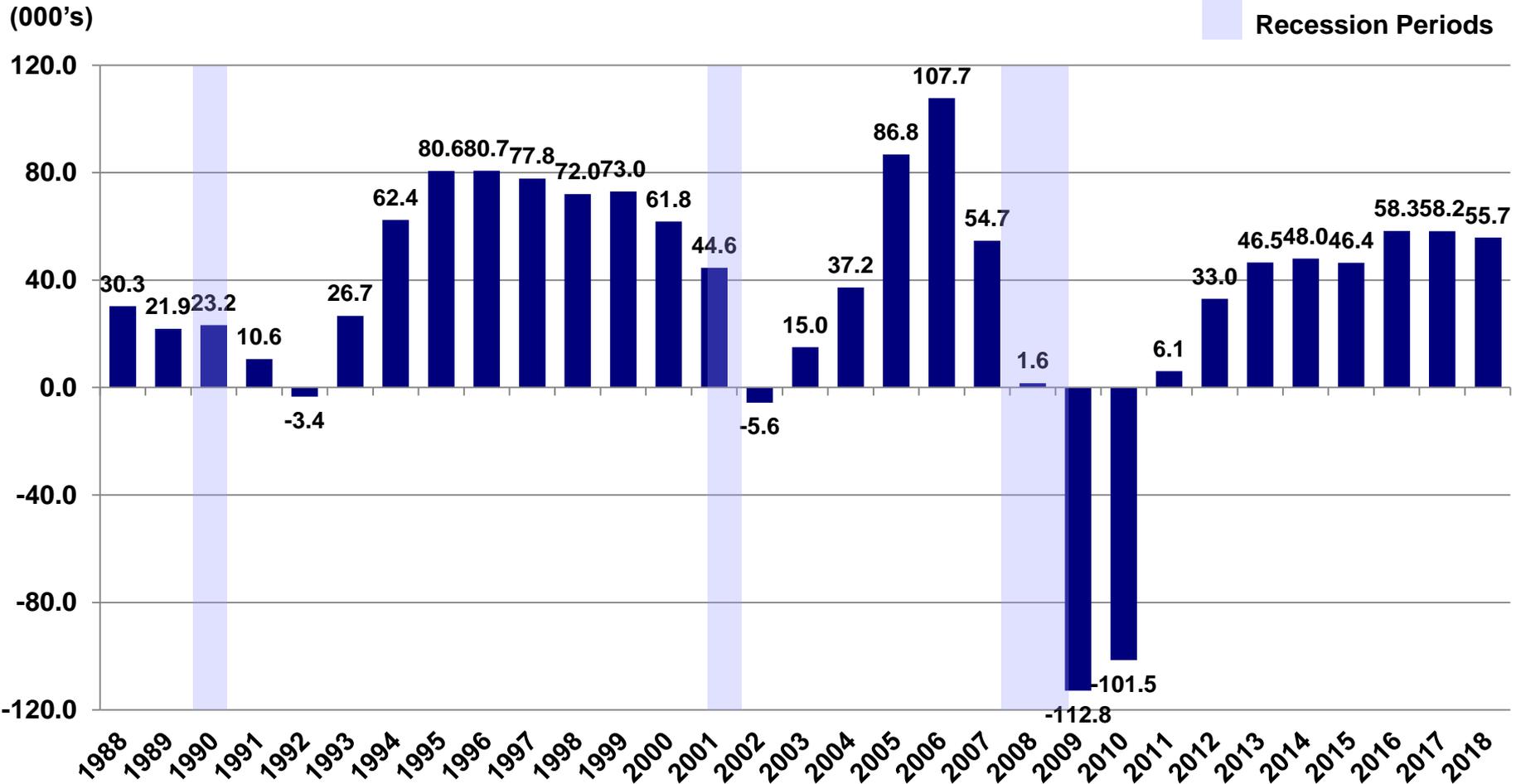


*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.



Maricopa County Employment* Net Annual Growth Change FY1988–2019**

Source: Office of Economic Opportunity



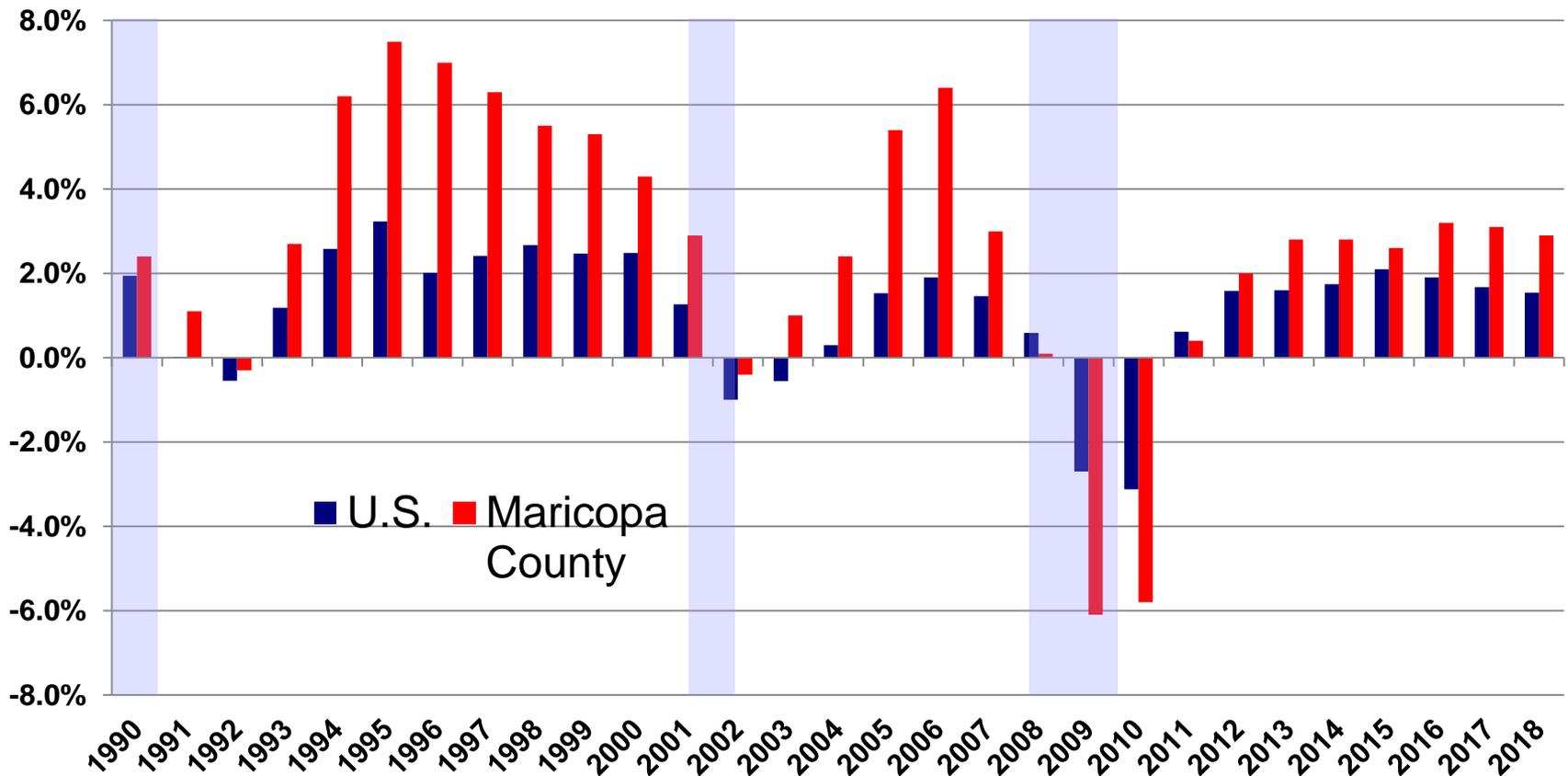
*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.



Employment: Maricopa County to U.S. Annual Growth Rate FY1990-2017

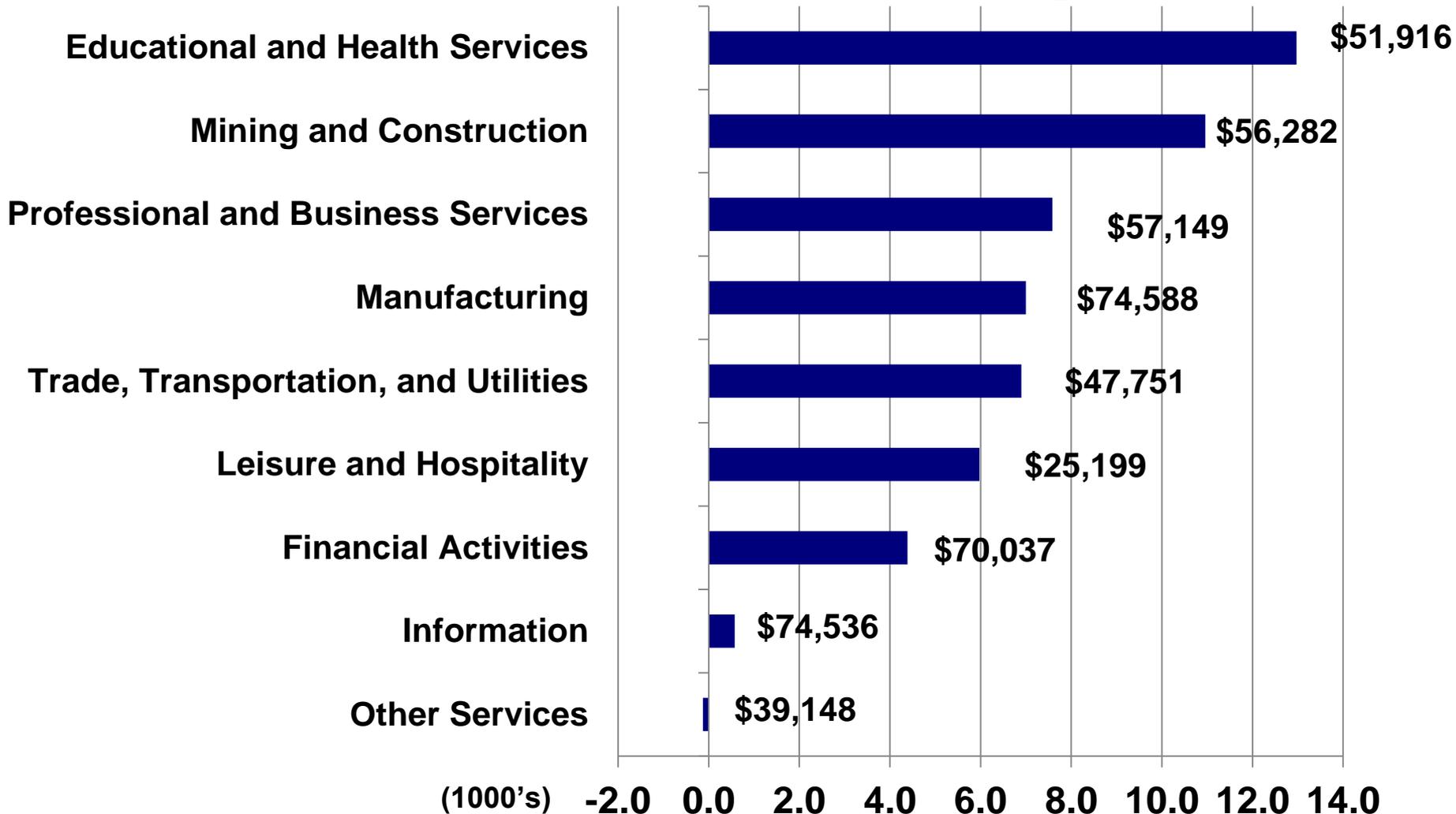
Source: Bureau of Labor Statistics

Recession Periods



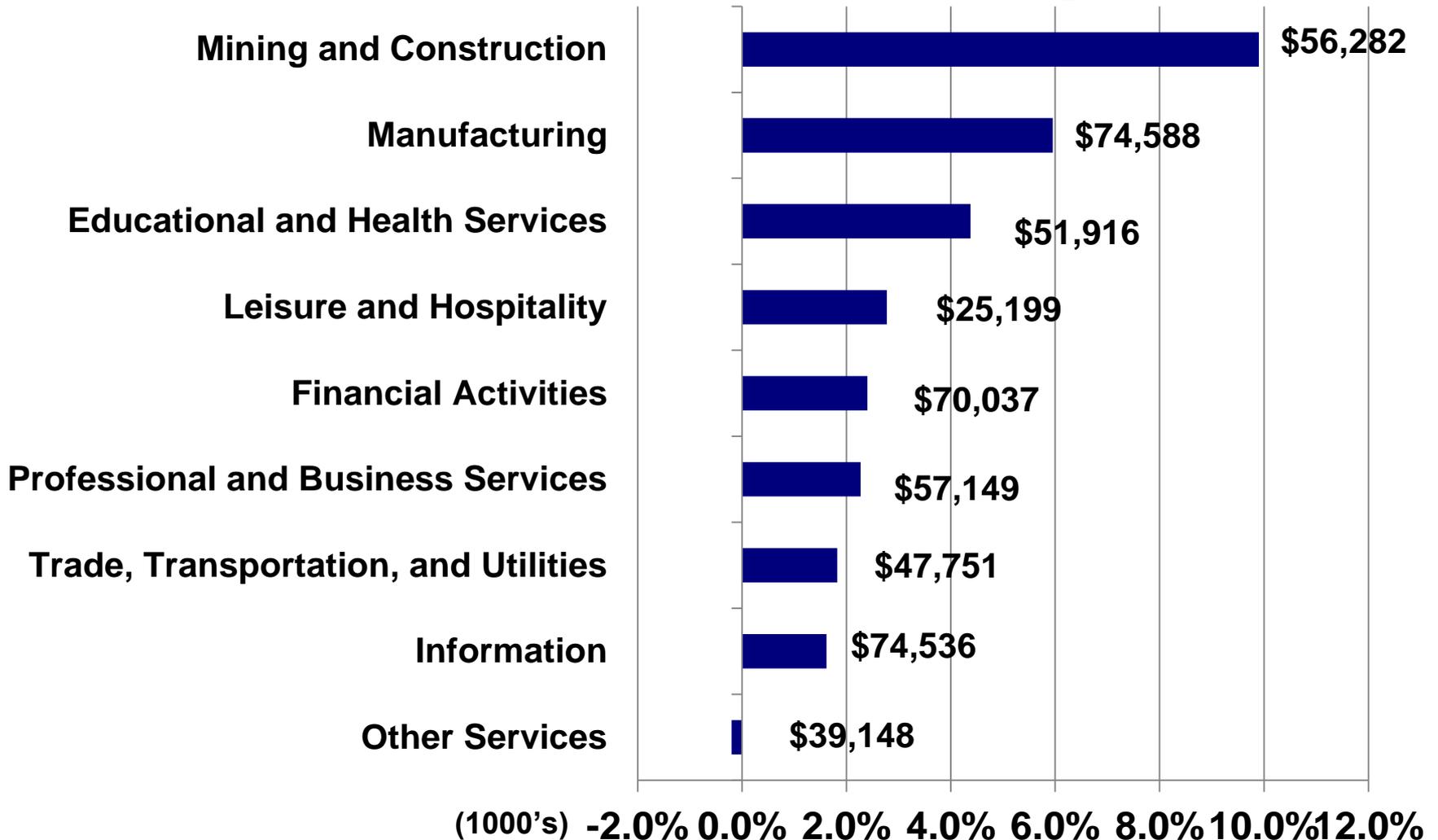
2018*

Net Job Growth and Wages



2018*

% Job Growth and Wages



Where are the Inflows of Population?



Population Growth after Recessions

Maricopa County

Source: Office of Economic Opportunity

Years	% Growth	APR
1975-1980	32.7%	3.6%
1981-1990	34.2%	3.7%
1991-2001	36.1%	3.9%
2001-2007	20.4%	2.3%
2009-2017	10.5%	1.3%



Growth itself is an economic driver in Maricopa County—

People moving to the State create demand for goods and services that create more jobs.

When you grow around 1.6% instead of 3.2%, the part of the economy that is based on servicing new population becomes much smaller.



Maricopa County Population

Source: U.S. Bureau of Census; Office of Economic Opportunity; EDPCo

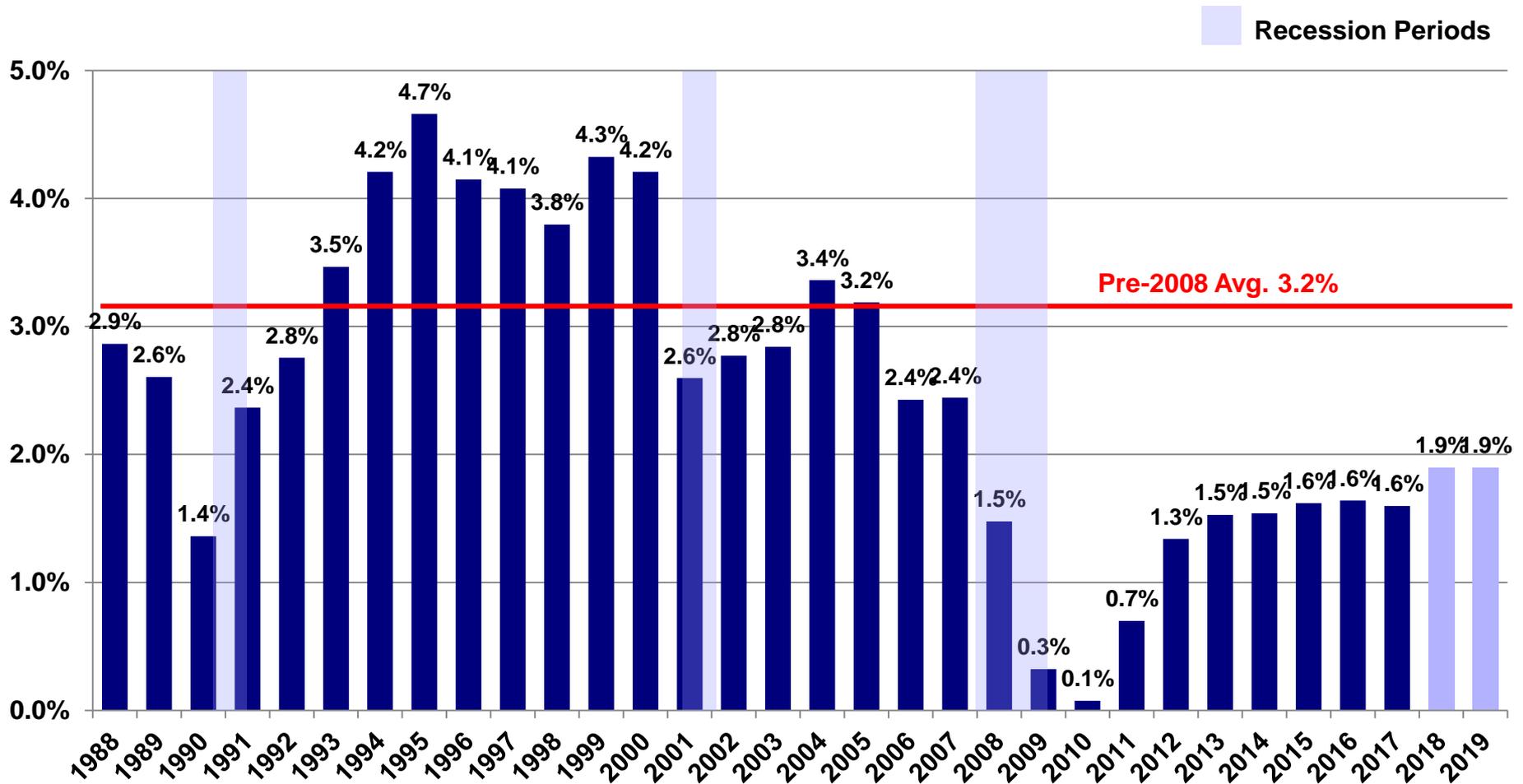
Period Ending	Population	Change	APR
1970	979,800	316,290	4.0%
1980	1,515,100	535,300	4.5%
1990	2,130,400	615,300	3.5%
2000	3,092,927	962,527	3.8%
2010	3,824,058	731,131	2.1%
2015	4,088,255	264,196	1.3%
2020*	4,466,921	642,863	1.8%

*Forecasts from EDPCo
1970-2010 10 year period
2010-2020 5 year period



Maricopa County Population Annual Percent Change 1988–2019*

Source: Office of Economic Opportunity, EDPCo

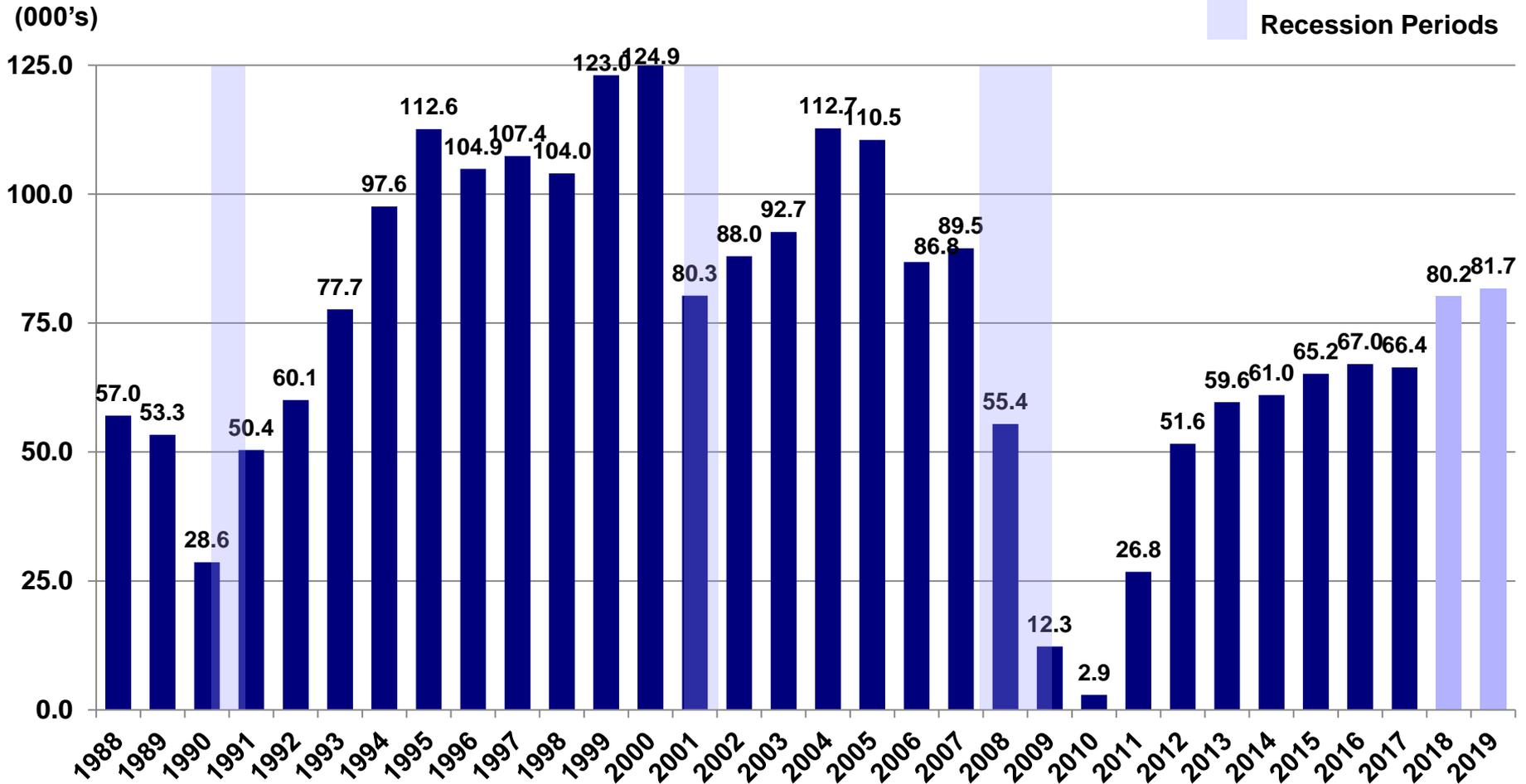


*Estimates for 2011, 2012, 2013, 2014, 2015 and 2016 and forecasts for 2018 and 2019 from Elliott D. Pollack & Co. as of August 2018.



Maricopa County Population Annual Net Change 1975–2019*

Source: Office of Economic Opportunity, EDPCo

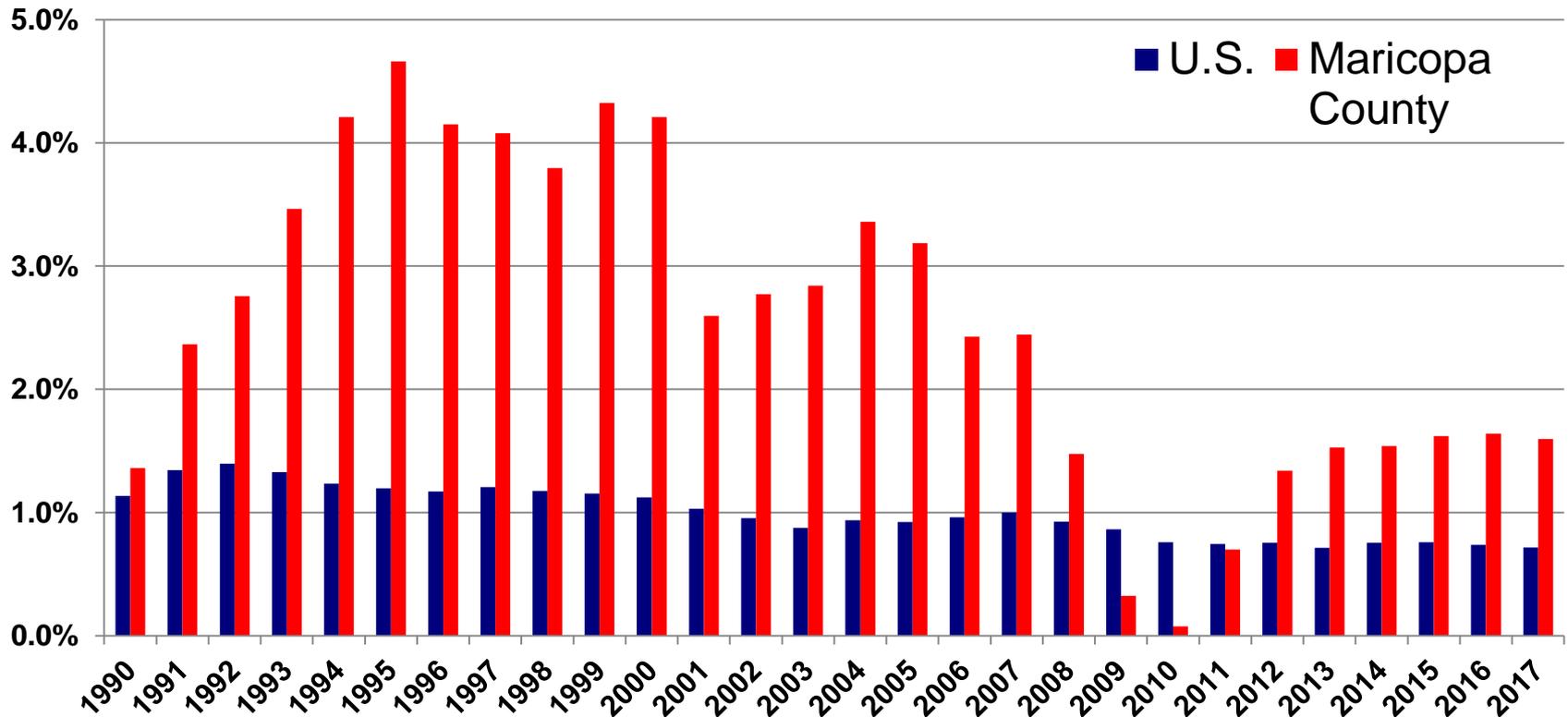


*Estimates for 2011, 2012, 2013, 2014, 2015 and 2016 and forecasts for 2018 and 2019 from Elliott D. Pollack & Co. as of August 2018.



Population: Maricopa County to U.S. Annual Growth Rate 1990-2017

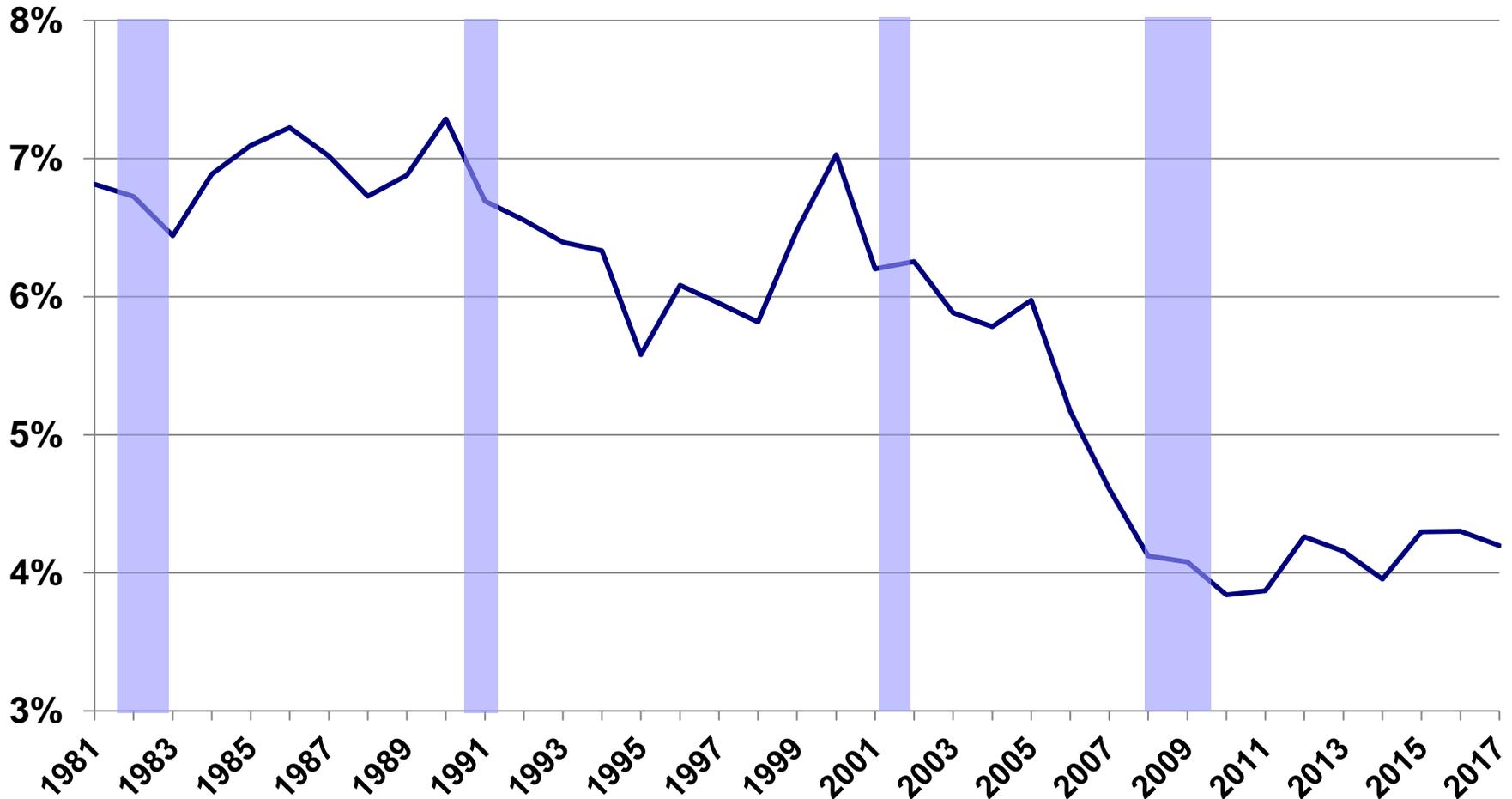
Source: U.S. Census Bureau; Office of Economic Opportunity; EDPCo



Total Movers as a % of Total U.S. Population

Source: U.S. Census Bureau

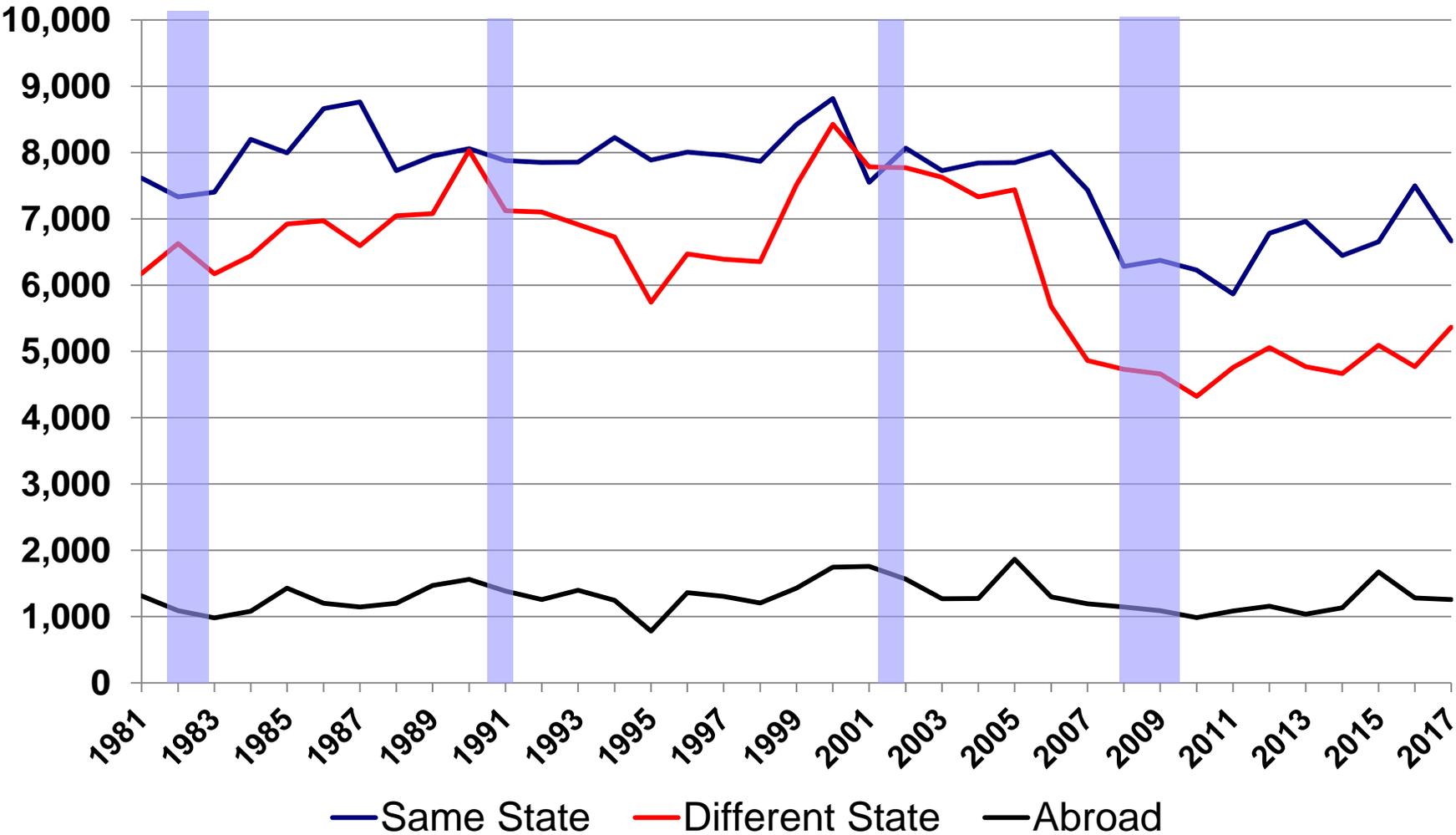
Recession Periods



Movers from an Outside Area 1981-2017

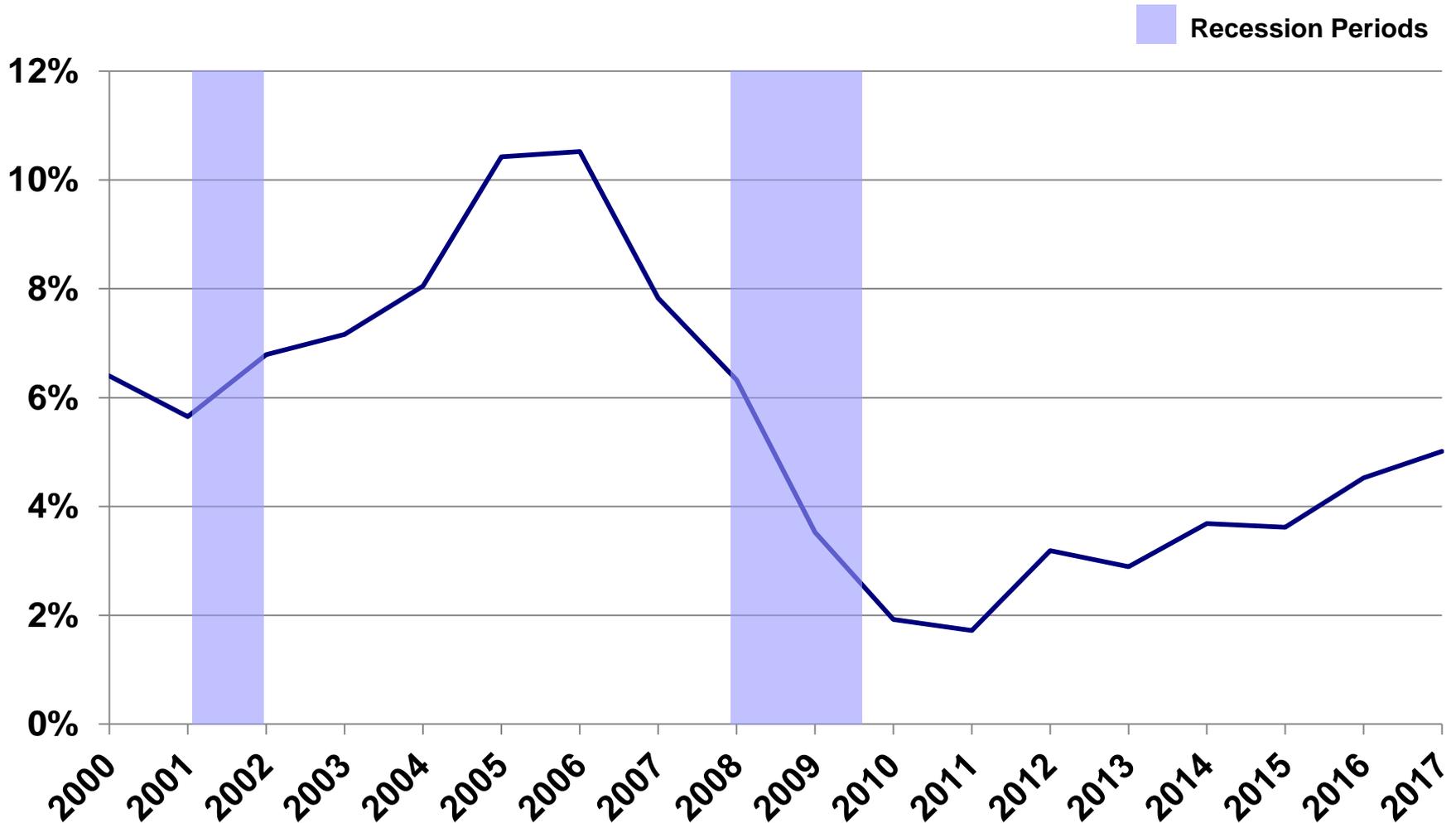
Source: U.S. Census Bureau

Recession Periods



Arizona Capture Rate

Source: U.S. Census Bureau



2017 Population Growth Rank By County

Source: U.S. Census Bureau

Rank	County	Population	Net Chg.	Percent Chg.
1	Maricopa, AZ	4,307,033	73,650	1.7%
2	Clark, NV	2,204,079	47,355	2.2%
3	Riverside, CA	2,423,266	36,744	1.5%
4	Harris, TX	4,652,980	35,939	0.8%
5	Tarrant, TX	2,054,475	32,729	1.6%
6	King, WA	2,188,649	32,687	1.5%
7	Bexar, TX	1,958,578	30,831	1.6%
8	Dallas, TX	2,618,148	30,686	1.2%
9	Denton, TX	836,210	27,911	3.5%
10	Collin, TX	969,603	27,150	2.9%



Housing Market Outlook



Overview of Single Family Housing

- Current conditions in the single family market are the polar opposite of 2007-2011
- No signs of over supply
- Signs of strong pent-up demand

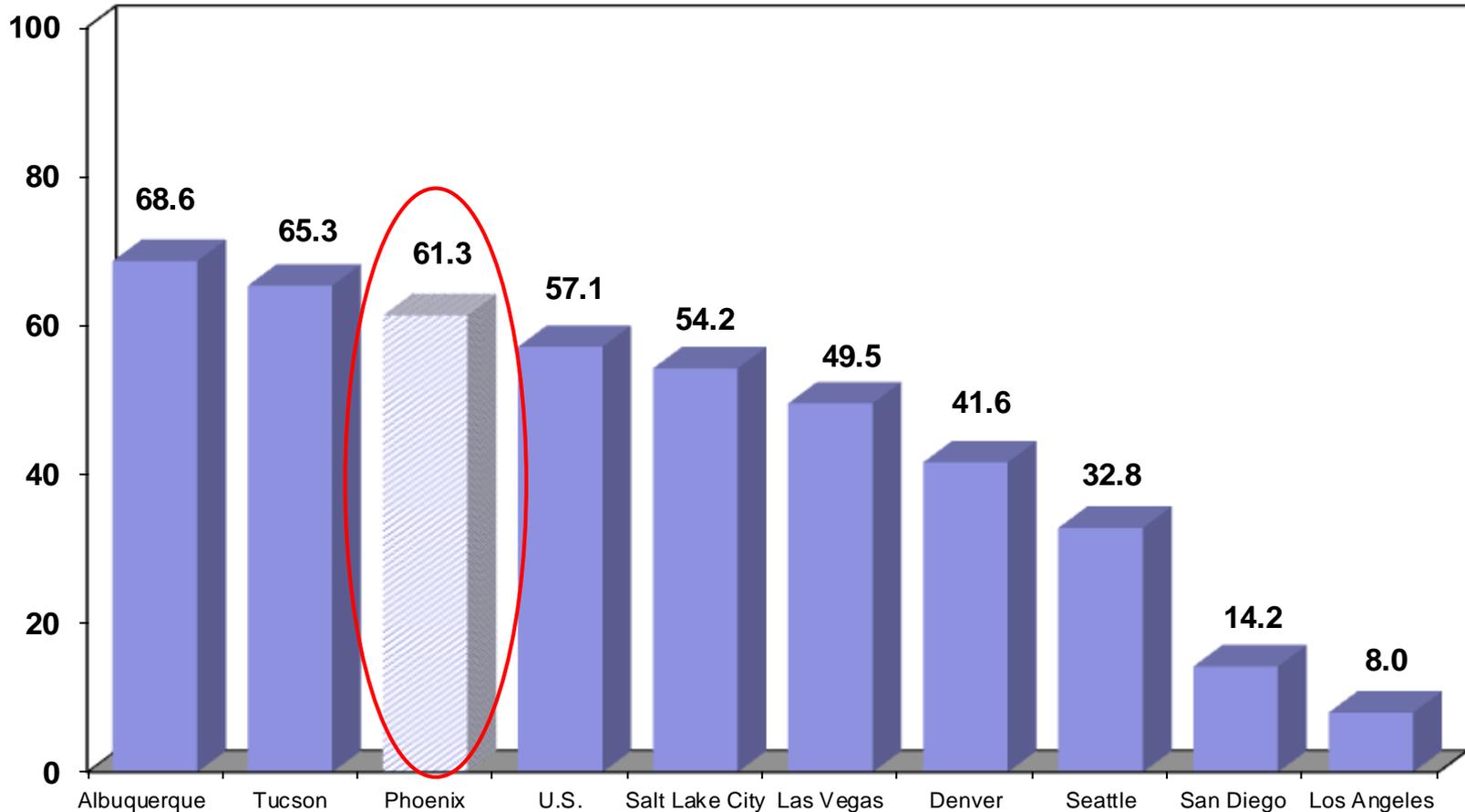


Affordability is a key-concern, with millennials entering the marketplace and the retirement population growing.



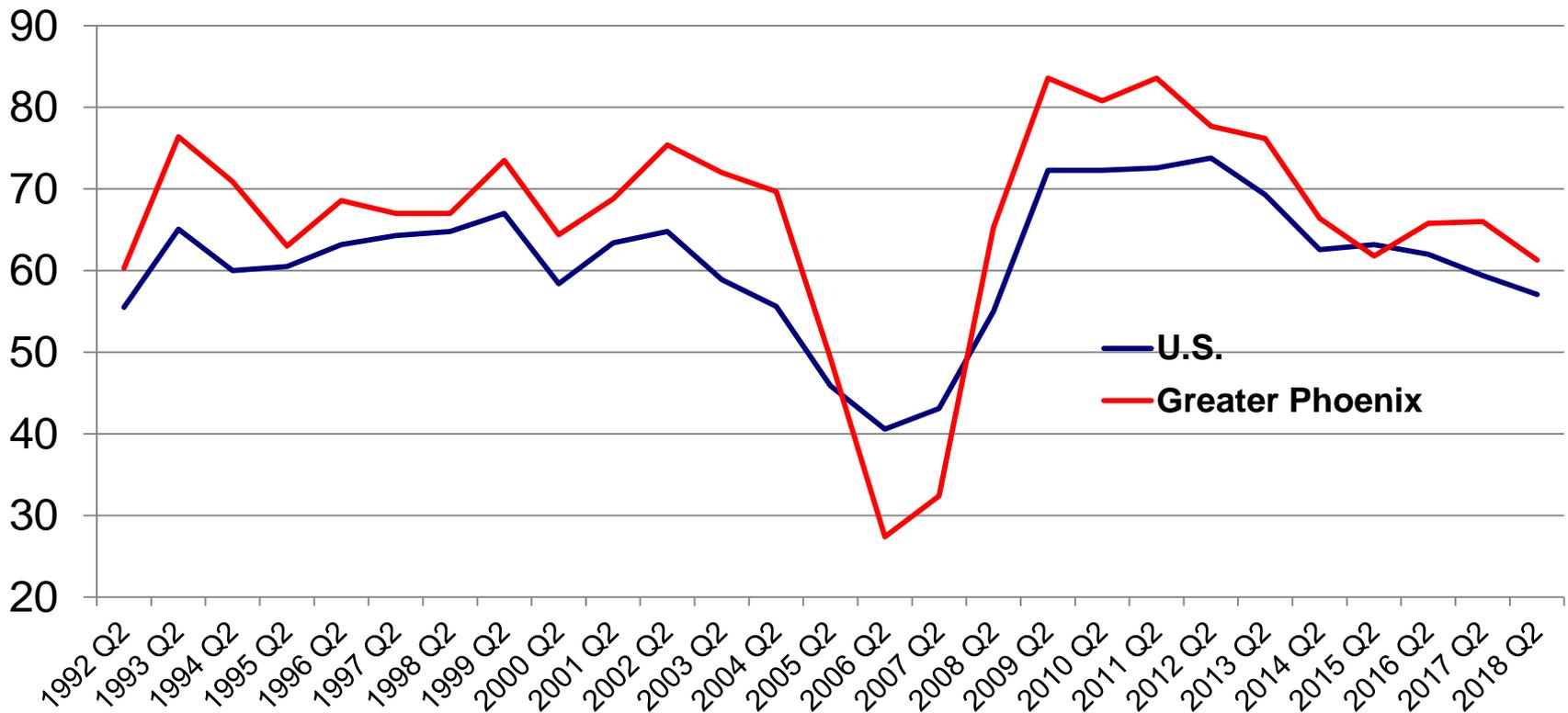
Housing Opportunity Index 2018 Q2

Source: NAHB/Wells Fargo



Housing Opportunity Index 1992-2018

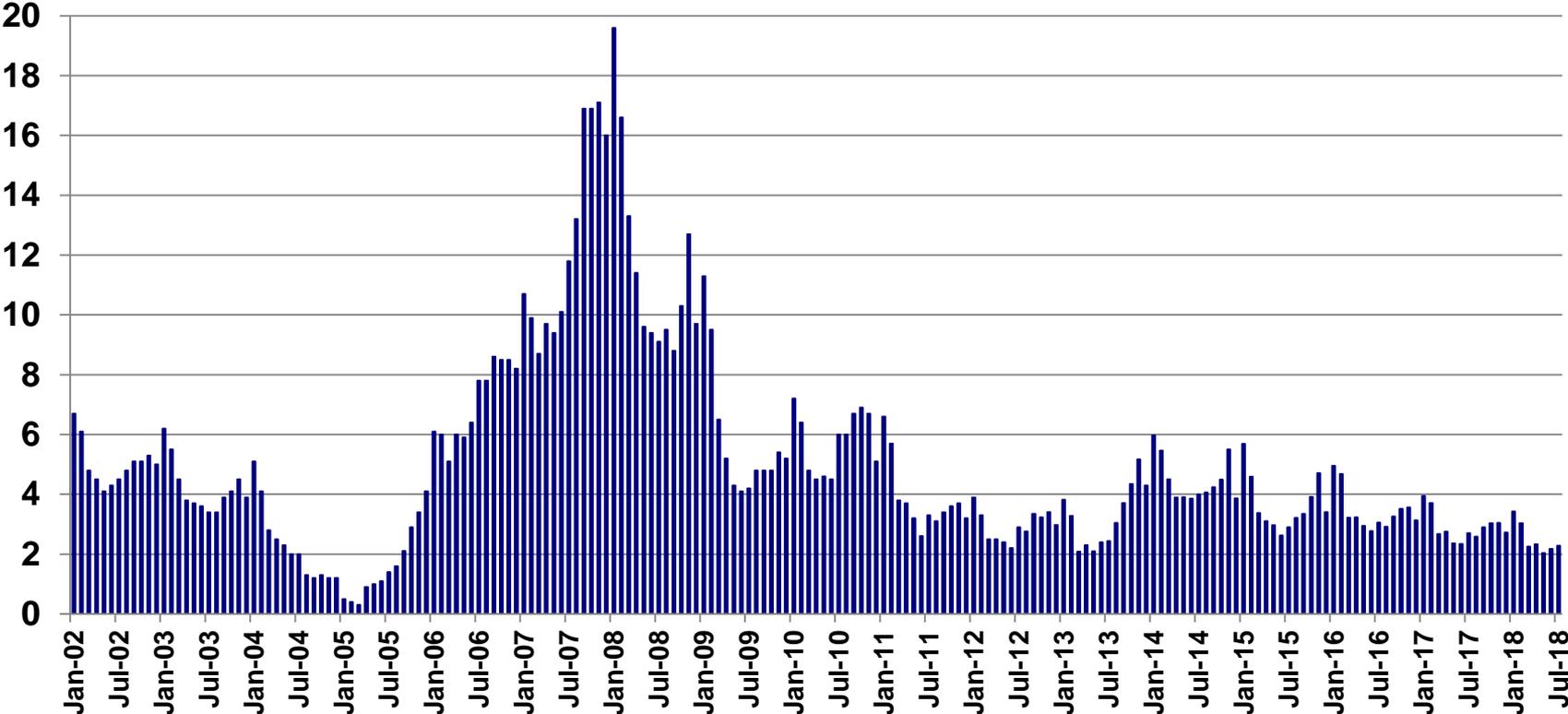
Source: NAHB/Wells Fargo



Greater Phoenix Month's Supply

2002-2018*

Source: ARMLS



Builders are facing supply side constraints:

- **Cost of buildable lots**
- **Increasing construction material costs**
- **Sufficient labor???**

And demand side constraints of rising mortgage interest rates

The result is upward pressure on housing prices and reduced affordability.



Pricing by Builder in Greater Phoenix

Source: Belfiore

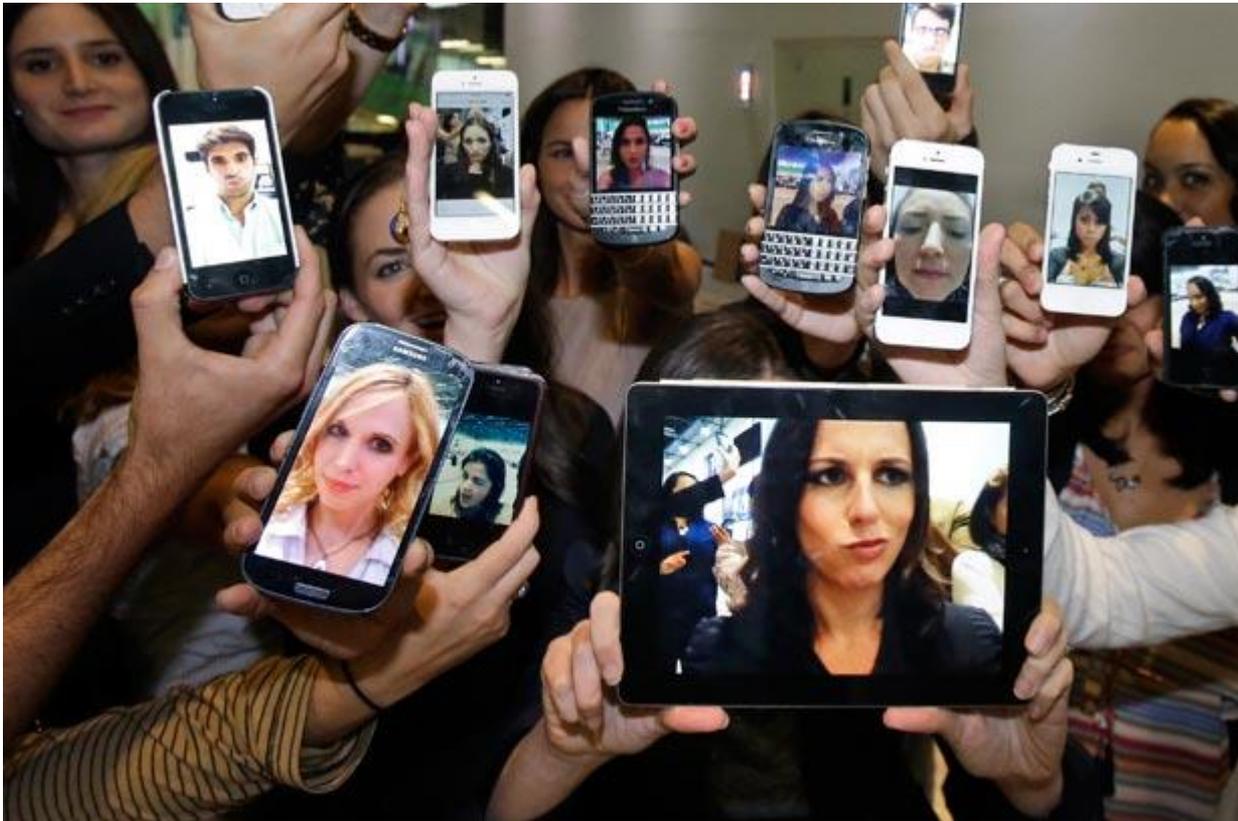
Subdivision Name	Builder Name	Net Pricing Range
The Palms	D. R. Horton	\$224,305 - \$258,305
Discovery & Encore at Adora Trails	Taylor Morrison	\$286,240 - \$341,240
Cantada Ranch	Garrett-Walker Homes	\$229,990 - \$282,990
Express at Tartesso	D. R. Horton	\$170,240 - \$229,240
Magma Ranch Unit 8	D. R. Horton	\$170,240 - \$206,240
Magma Ranch Unit 6	D. R. Horton	\$171,155 - \$199,155
Meadows at Homestead	D. R. Horton	\$185,532 - \$200,532
Express at Santa Rosa Springs (P1)	D. R. Horton	\$163,305 - \$233,305
Saguaro & Agave at Watson Estates	D. R. Horton	\$194,490 - \$239,990
Condos at Rhythm	Mattamy Homes	\$259,054 - \$293,554



**Top-seller are mostly smaller-lot,
lower-priced new home
communities- communities target
entry-level and value-oriented
buyers.**

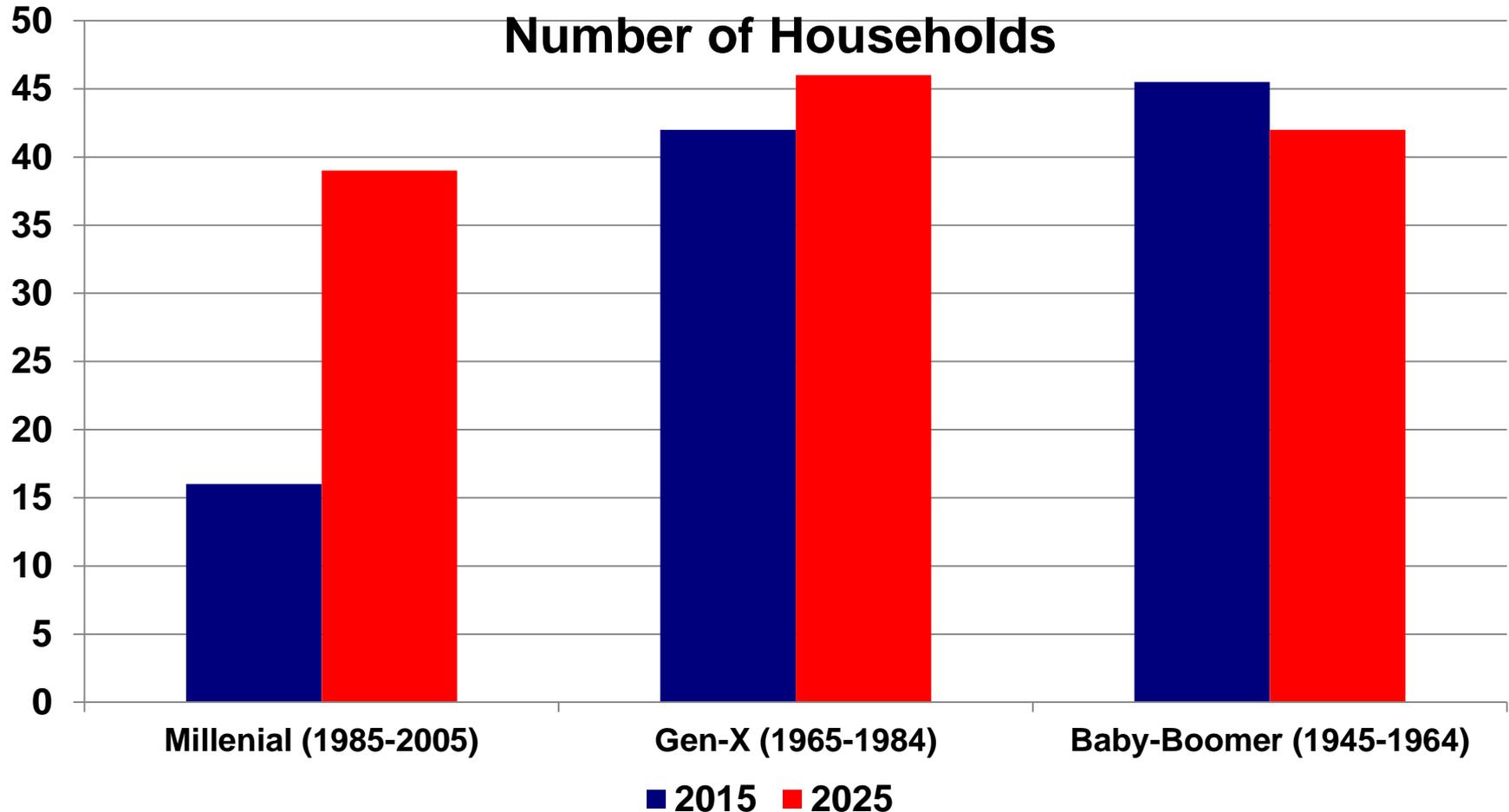


Millennials



Most new Housing demand over the next 10 years will come from millennials

Source: JCHS tabulations of 2016 JCHS Household Projections, Harvard



Baby Boomers Versus Millennials Aged 25-34

Source: Bowling Green State University; 1980 Decennial Census; 2015 American Community Survey

	Baby Boomers (1980)	Millennials (2015)
Married	68%	40%
Never Married	20%	53%
Live in Independent Households	84%	59%
Lived with Parents/Grandparents	9%	22%



Maricopa County

Homeownership Rates by Age Group

Source: 2016 American Community Survey 1-Year Estimates; OEO

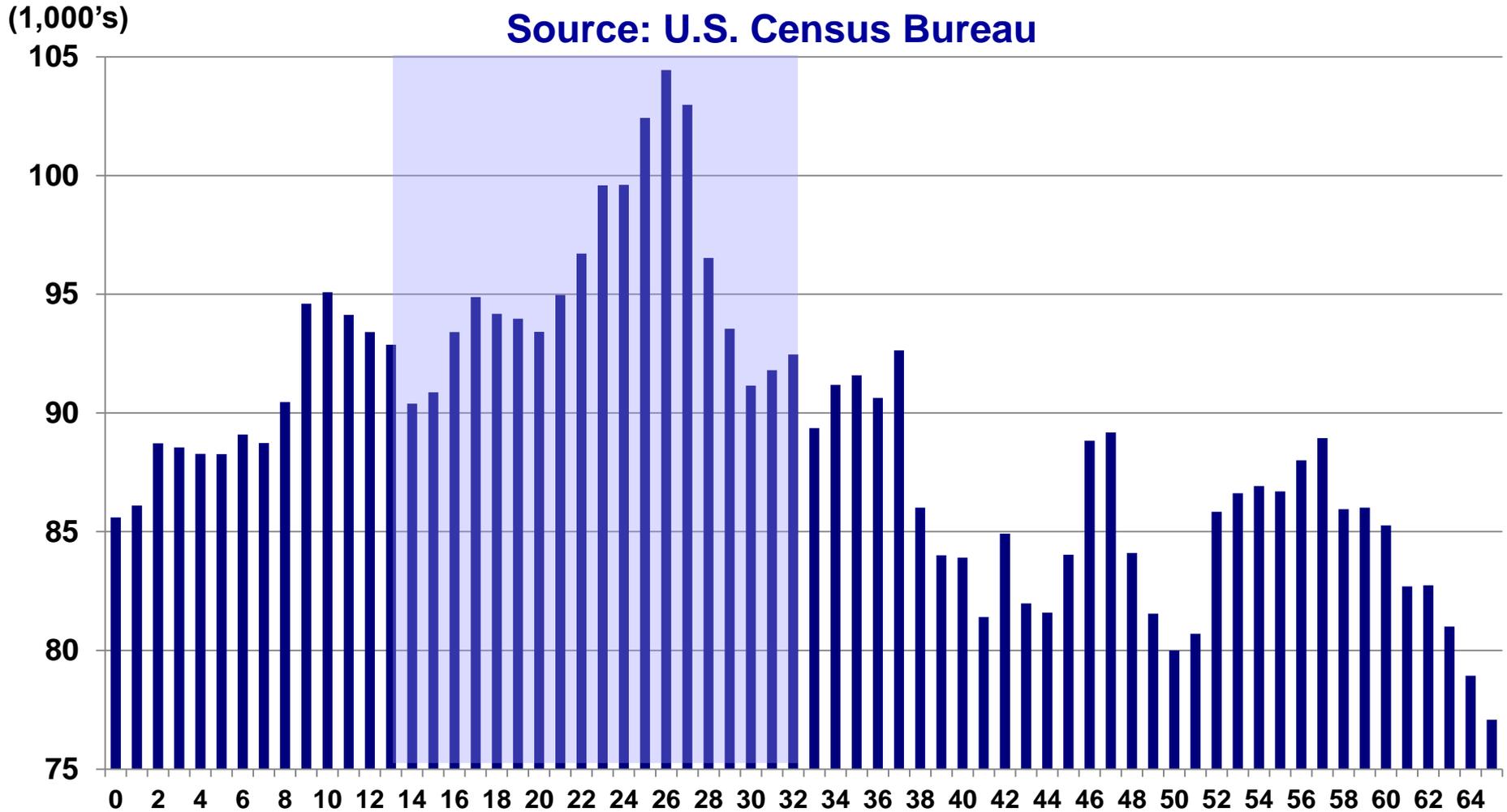
Householder Age	% of Total Occupied
15 to 24 years	10.8%
25 to 34 years	<u>35.8%</u>
35 to 44 years	<u>53.9%</u>
45 to 54 years	63.5%
55 to 64 years	73.0%
65 to 74 years	80.5%
75 to 84 years	81.0%
85 years and over	70.1%
Total	60.5%



Arizona Population by Age

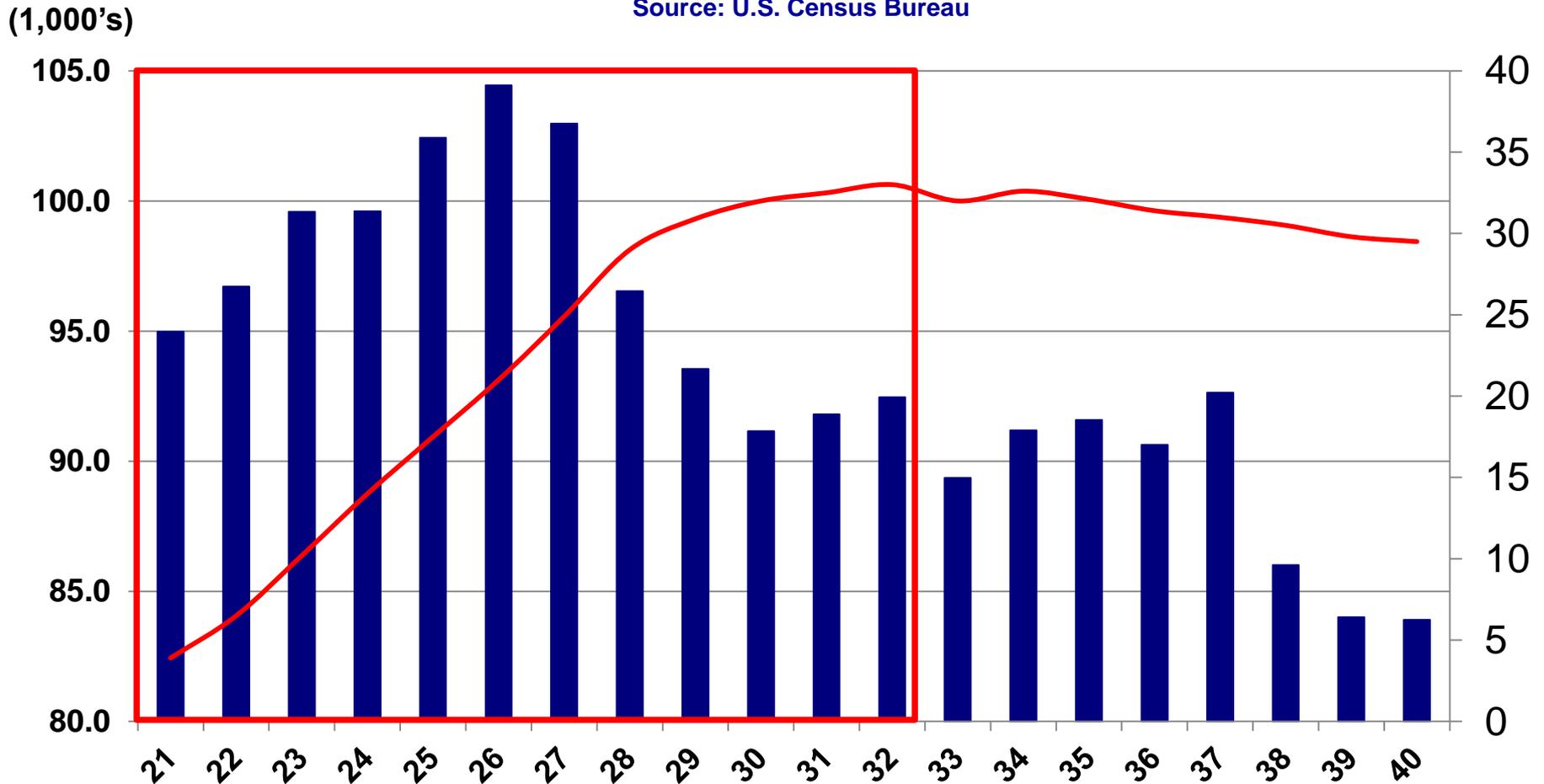
2017

Source: U.S. Census Bureau



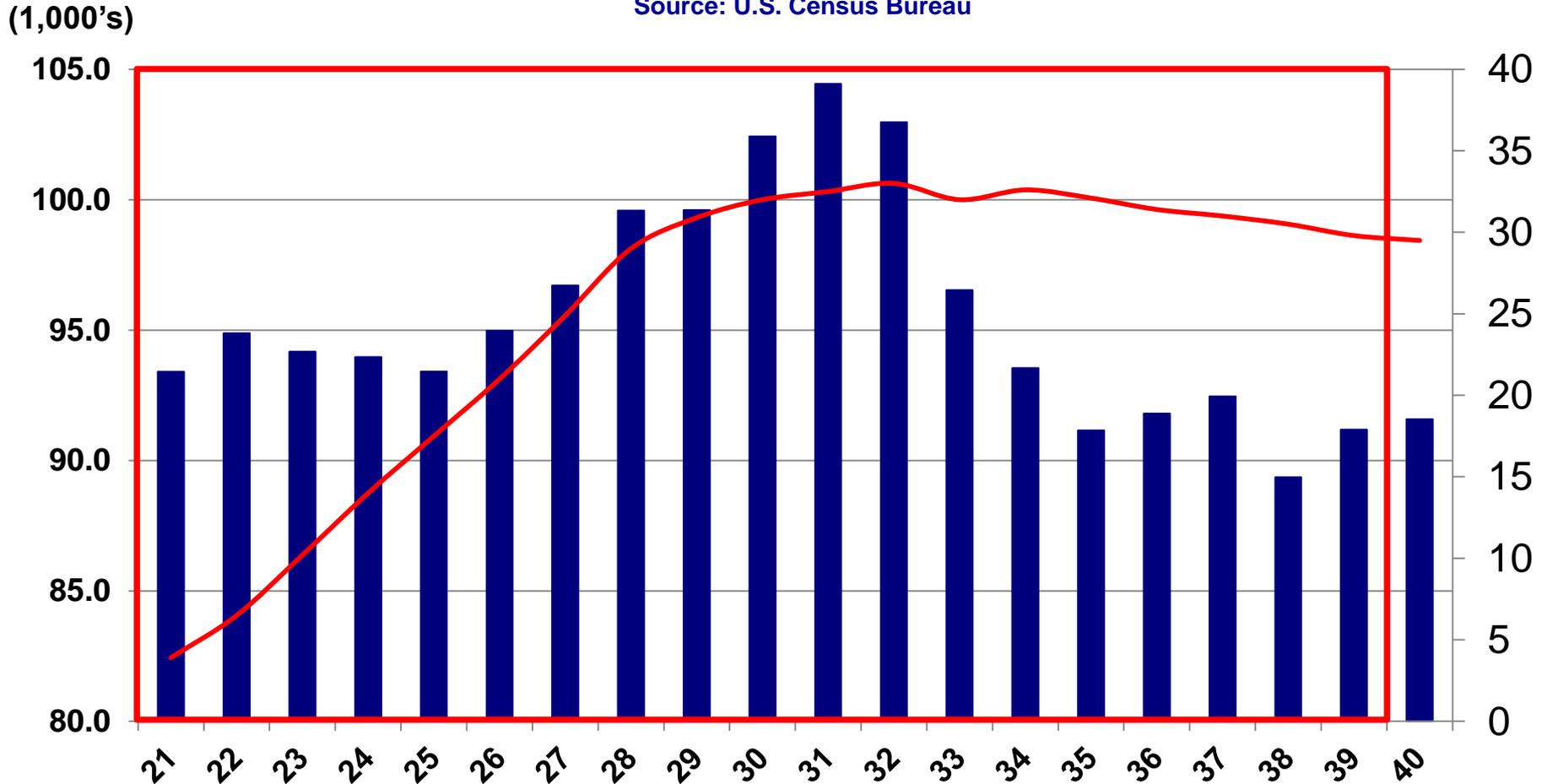
Arizona Number of Persons vs. Home-Purchase Loan Applications 2017

Source: U.S. Census Bureau



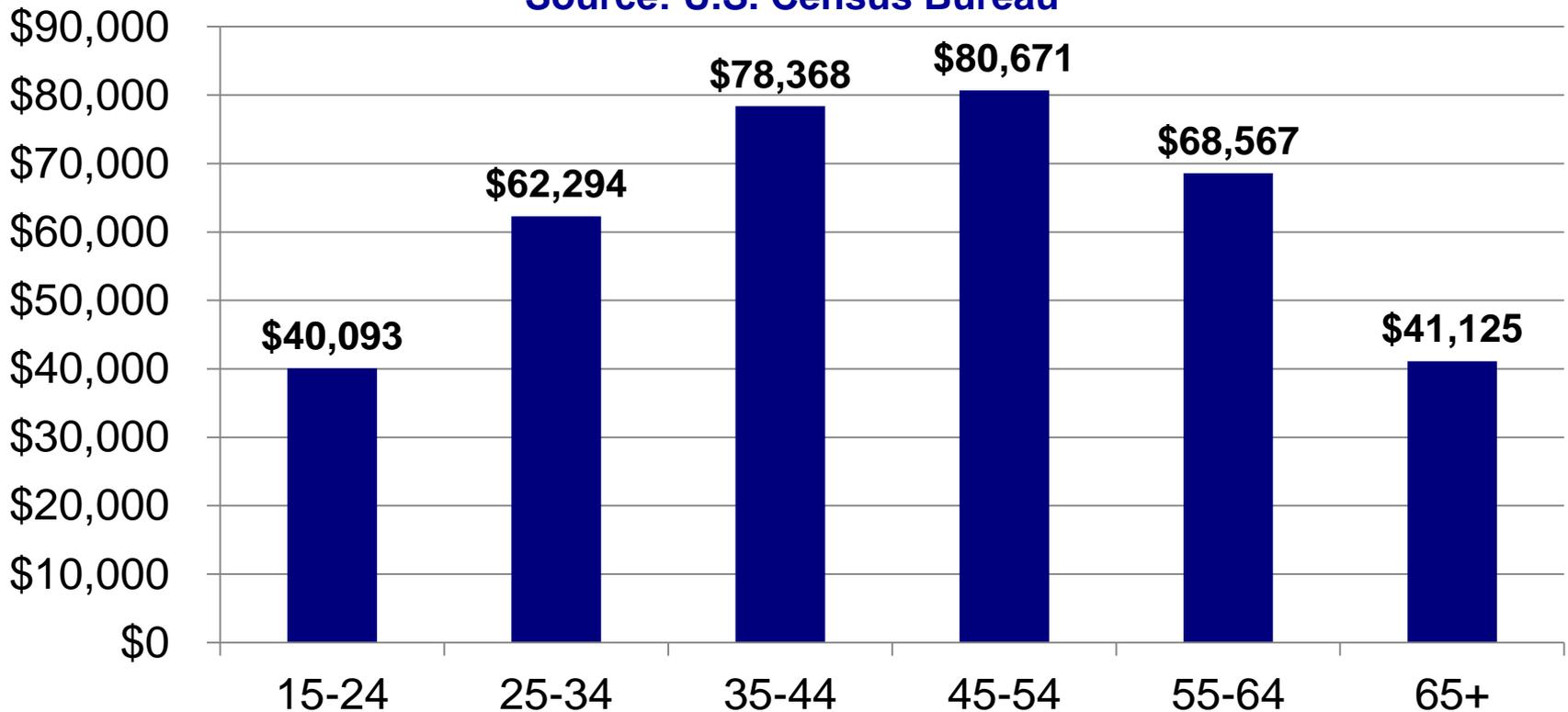
Arizona Number of Persons vs. Home-Purchase Loan Applications 2022

Source: U.S. Census Bureau



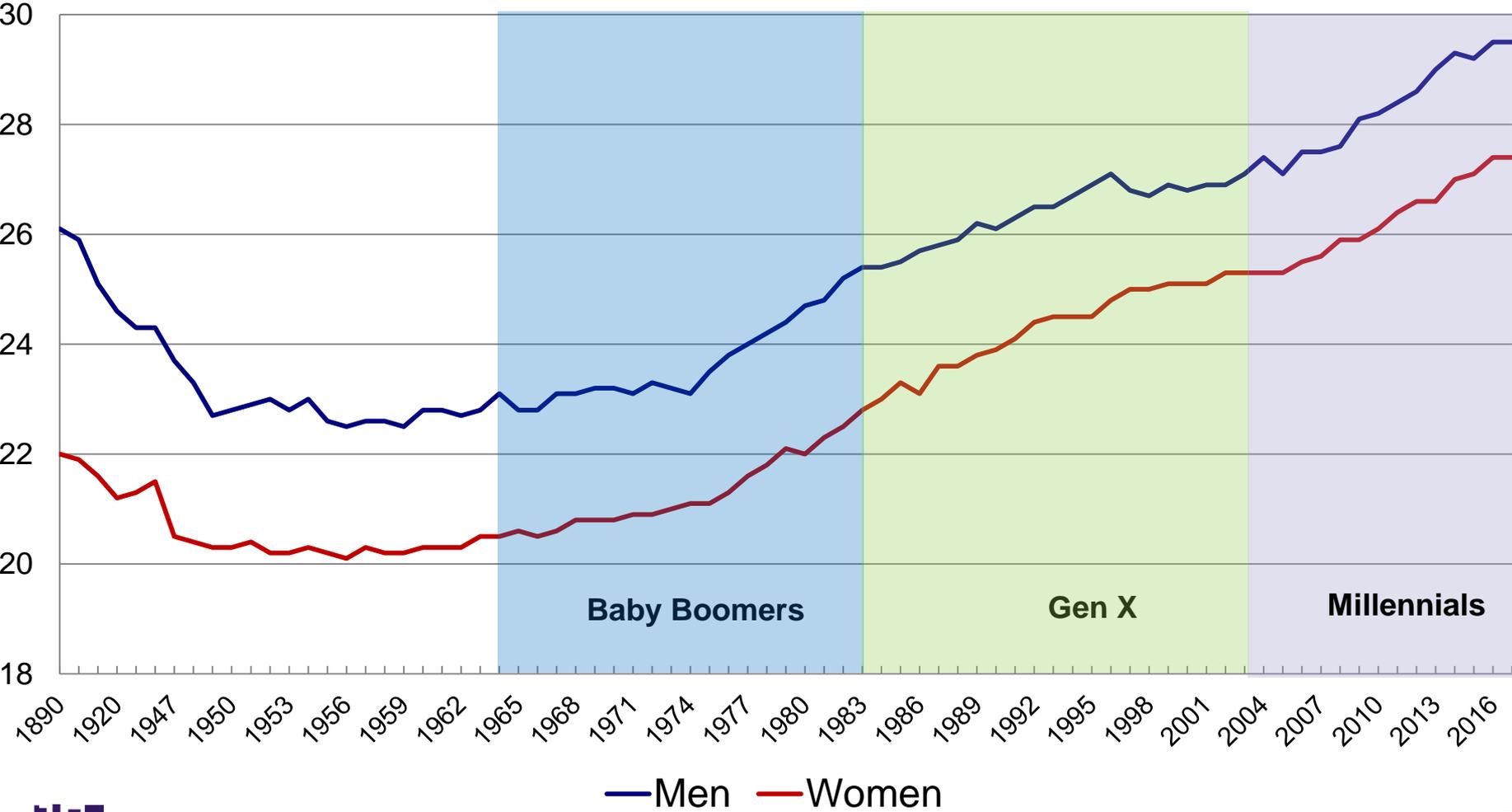
Median Household Income by Age Group 2017

Source: U.S. Census Bureau



U.S. Median Age at First Marriage 1890-2017

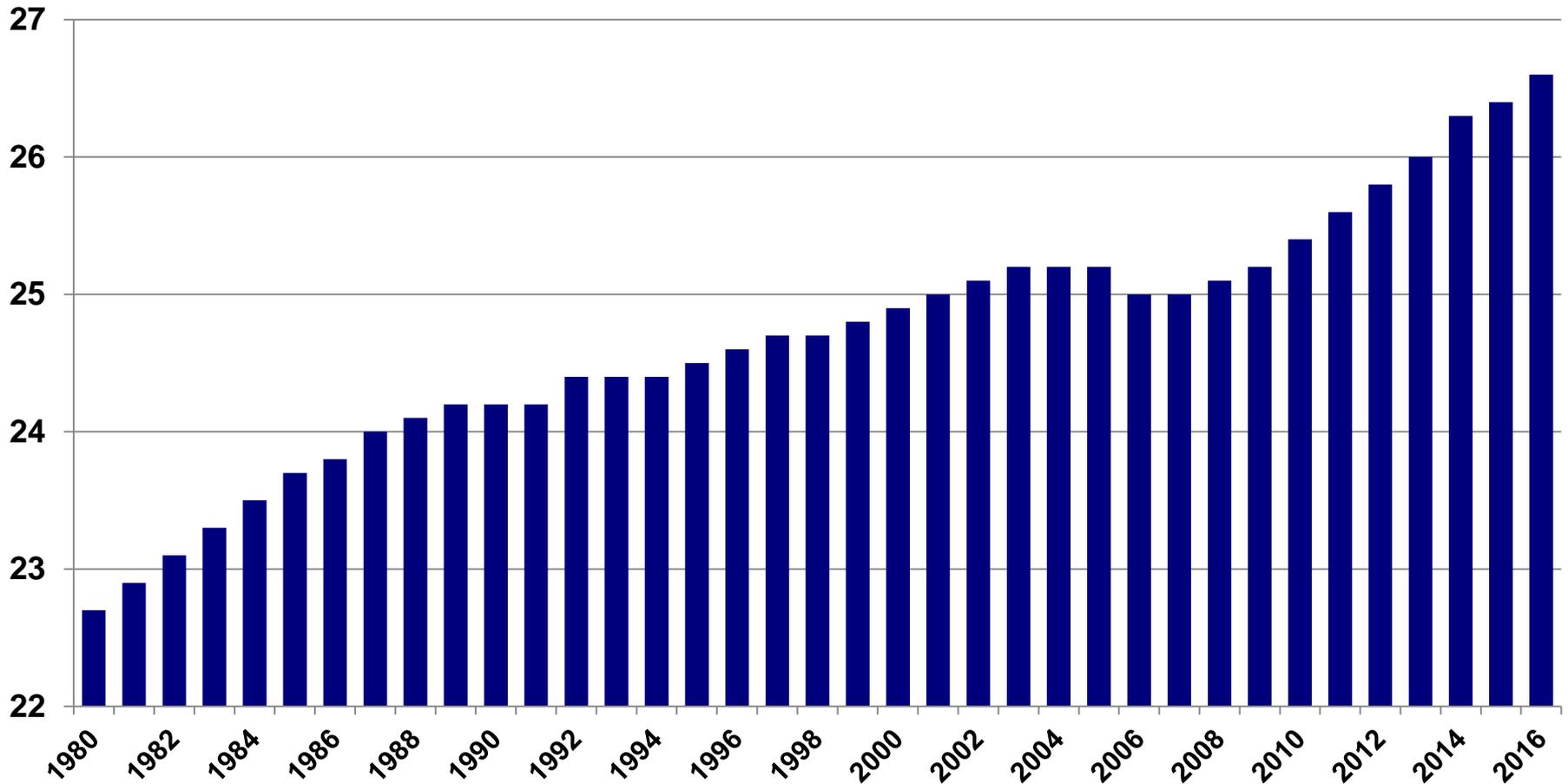
Source: U.S. Census Bureau



Mean Age at First Child

1980-2016

Source: CDC





Millennials were hit with several factors that, for many, delayed home buying from their 20's and 30's.



These Factors Include:

- **The Great Recession and the lack of job opportunities**
- **Greater acceptance of larger amounts of student debt**
- **Social mores are changing and becoming acceptable:**
 - **Delay of Marriage**
 - **Living with Mommy and Daddy**
 - **Becoming less materialistic**



Many of those changes are coming to an end as millennials start to:

- Pay off student loan debt
- Benefit from a strong economy
- Realize they are subject to the laws of biology



Student Loans

- 70% of students leave college with debt
- Standard repayment plan is 10 years
- 60% of students are expected to pay off their loan in their 40's



Student Debt Distribution

Source: Federal Reserve Bank of New York Consumer Credit Panel / Equifax

Balance	Number of Borrowers 2016 Q4	Number of Borrowers 2017 Q4	2017 Borrower
\$1 and \$5,000	8,769,700	8,547,500	28,250,100
\$5,000 and \$10,000	7,554,100	7,425,400	
\$10,000 and \$25,000	12,368,200	12,277,200	
\$25,000 and \$50,000	8,483,600	8,609,700	8,609,700
\$50,000 and \$75,000	3,539,000	3,681,000	7,855,700
\$75,000 and \$100,000	1,503,800	1,612,600	
\$100,000 and \$150,000	1,238,200	1,347,400	
\$150,000 and \$200,000	554,500	604,900	
\$200,000+	521,600	609,800	



Student Loan or Mortgage Payment

Original Amount	Monthly Payment	Potential Mortgage
\$200,000	\$2,121	\$418,664
\$150,000	\$1,591	\$313,998
\$100,000	\$1,061	\$209,332
\$75,000	\$795	\$156,999
\$50,000	\$530	\$104,666
\$25,000	\$265	\$52,333
\$10,000	\$106	\$20,933

Assumptions:
Monthly Payment
10 years
5% interest rate
Potential Mortgage
30-year mortgage
4.5% Interest rate



Most millennials should have their student debt paid within 5 to 10 years after graduating with their highest degree.

First millennials hit 22 in 2007.



**Millennials will start turning
35 in 2020**



Millennials Rent for Life?

Source: Fannie Mae

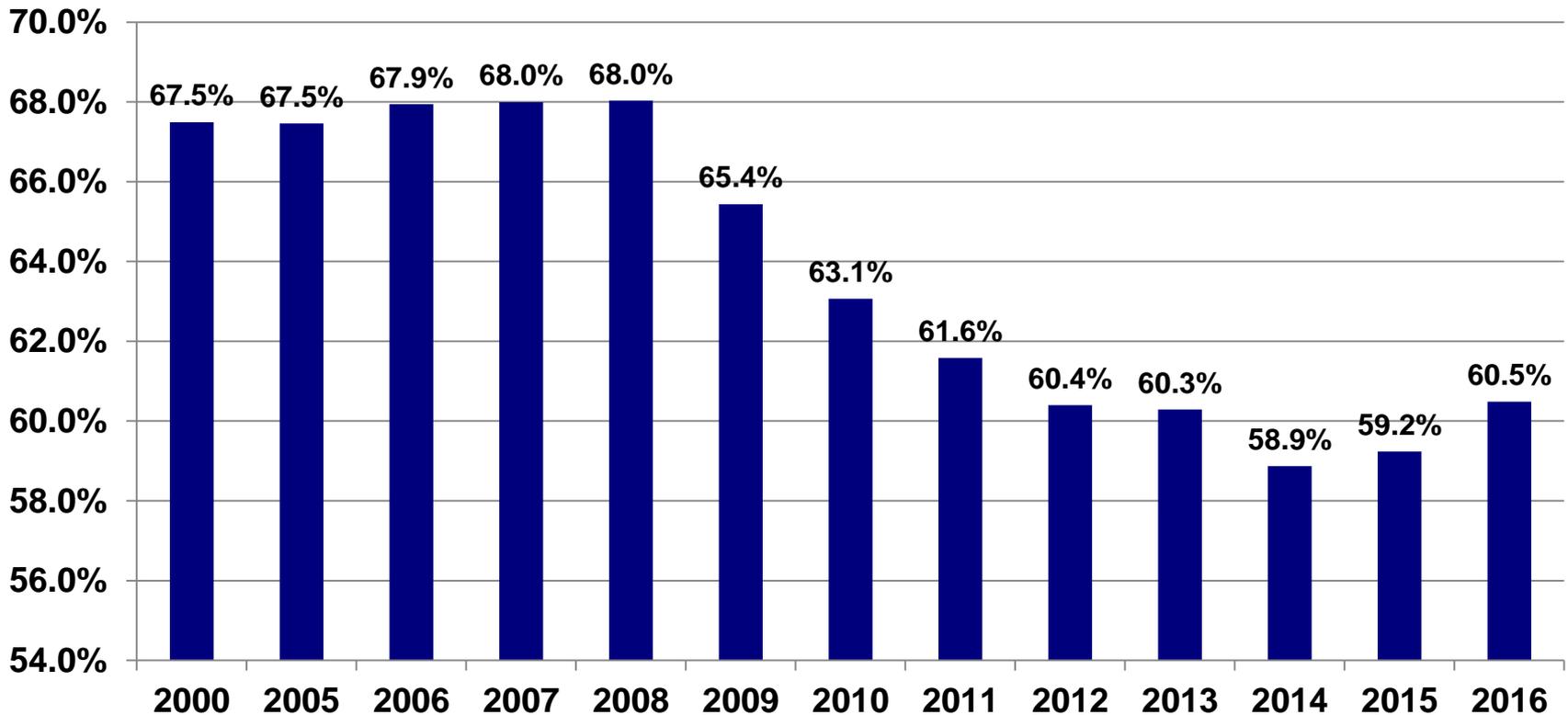
According to Fannie Mae's Renters Survey:

- 37% are renting in order to get ready to buy a home
- 46% said their biggest obstacle to doing so is saving up for a down payment and closing costs
- 95% said they plan to own someday



Homeownership Percentage Maricopa County

Source: U.S. Census, American Community Survey





Conclusion:

Significant of pent up demand.

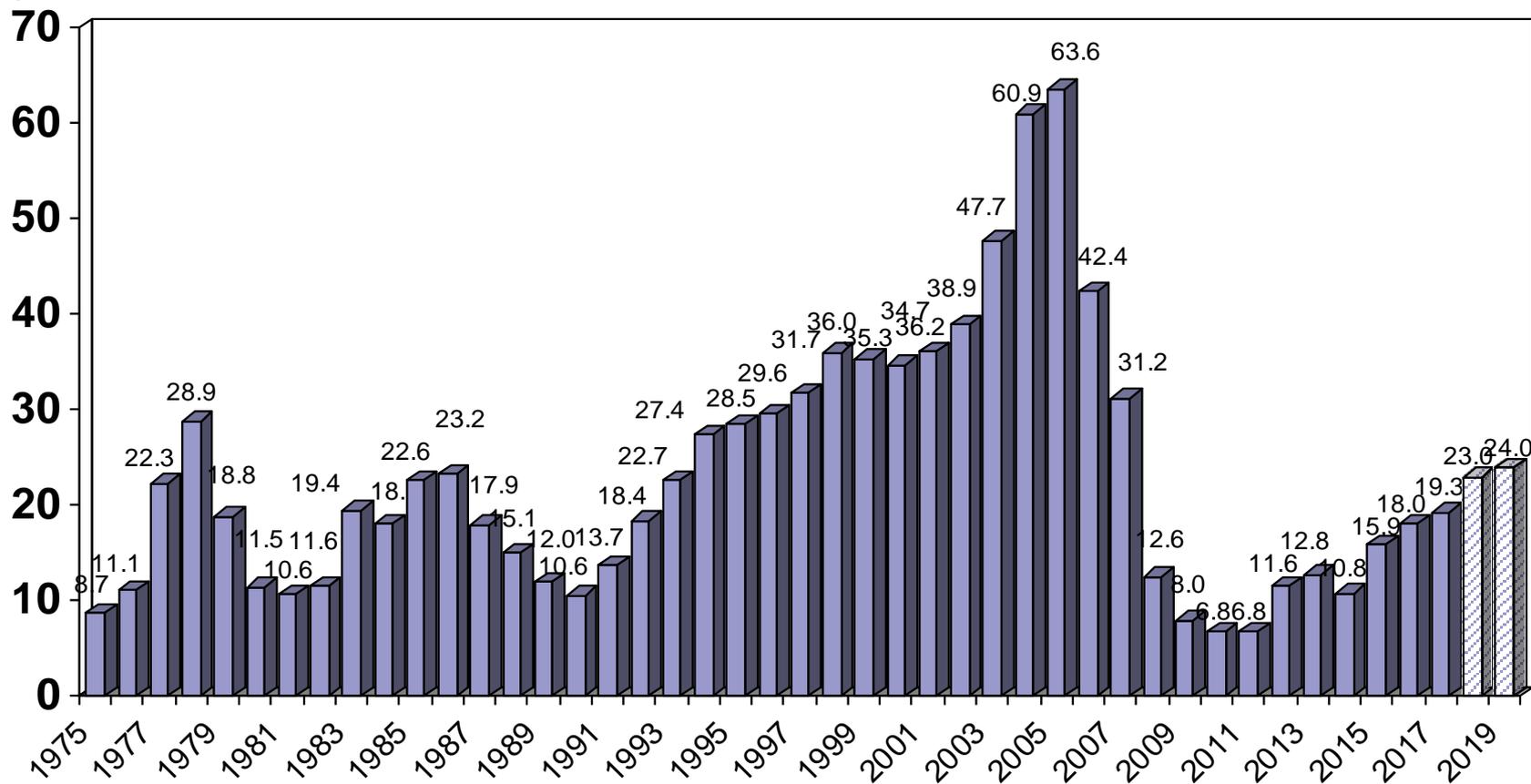
Outlook remains strong!



Single Family Permits Greater Phoenix 1975–2019*

Source: RL Brown & Elliott D. Pollack & company

Permits
(000)



*2018 and 2019 forecast is from Elliott D. Pollack & Company



Apartments



Multi-Family Housing Market

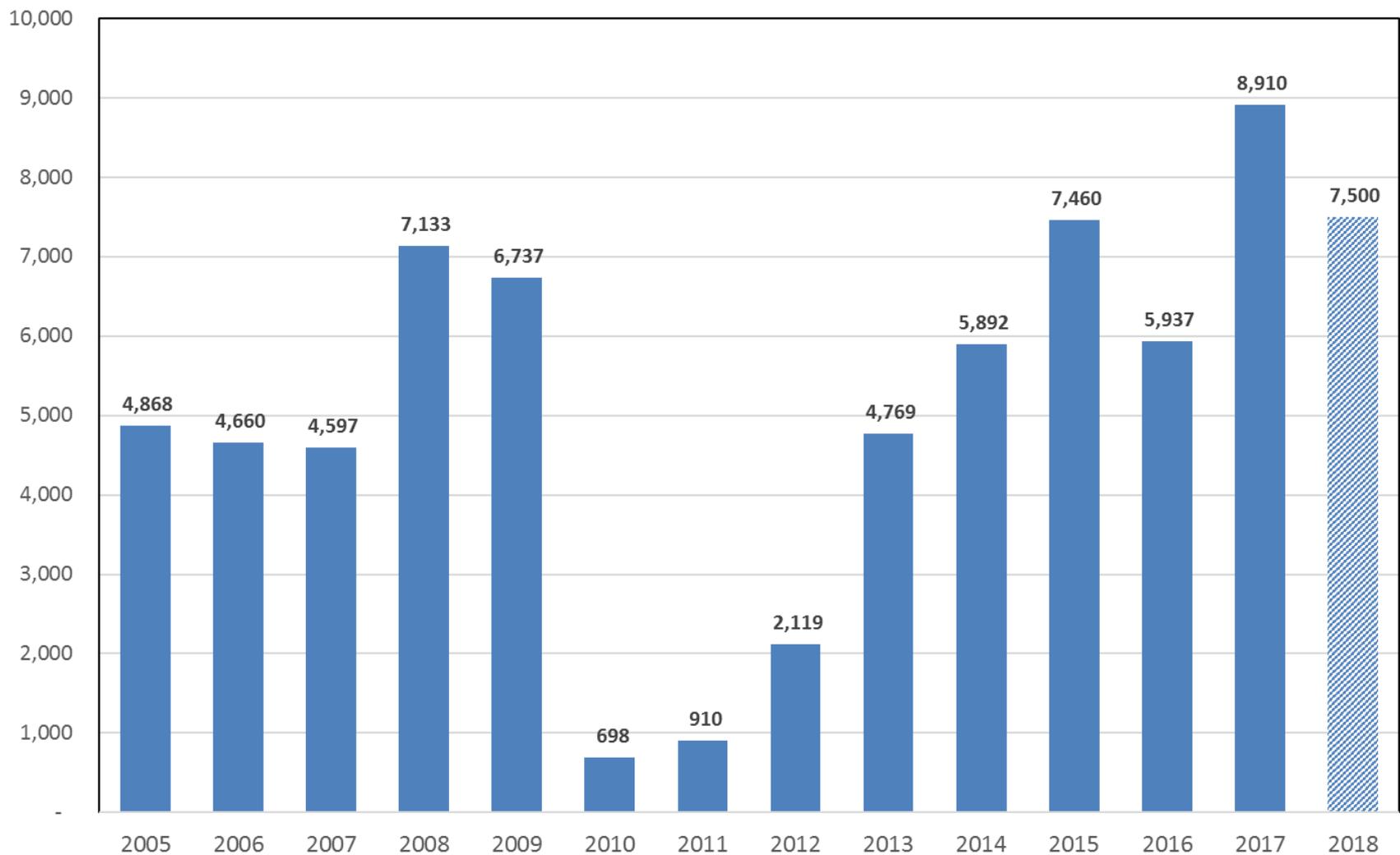
Source: PMHS; RealData

Year	Absorption (sf)	Chg in Inventory (sf)
2004	4,348	3,612
2005	-275	(4,181)
2006	-6,431	(3,798)
2007	-3,058	1,797
2008	960	8,484
2009	5,151	8,443
2010	10,021	1,441
2011	3,326	1,224
2012	2,756	1,573
2013	4,584	3,830
2014	5,823	6,351
2015	6,140	6,804
2016	5,731	8,018
2017	6,179	10,033



Apartment Unit Deliveries Maricopa County 2005-2017

Source: RealData





**High end apartment demand
will continue to be strong.**

**But there is a lot of high
priced supply coming to
market.**



Where is the supply/demand imbalance?



Worker Housing

Source: Everest Holdings

- **The strongest demand is in worker housing**
- **Households earning between 60% and 120% of median household income.**
- **This is not Subsidized housing**
- **Police officer, firefighters, teachers, retail workers, hospital workers, etc.**
- **Housing that is affordable (20 to 30 percent of Household income).**
- **Traditional Apartments, SF rentals and for-sale housing.**
- **Close to major employment centers and transportation routes.**

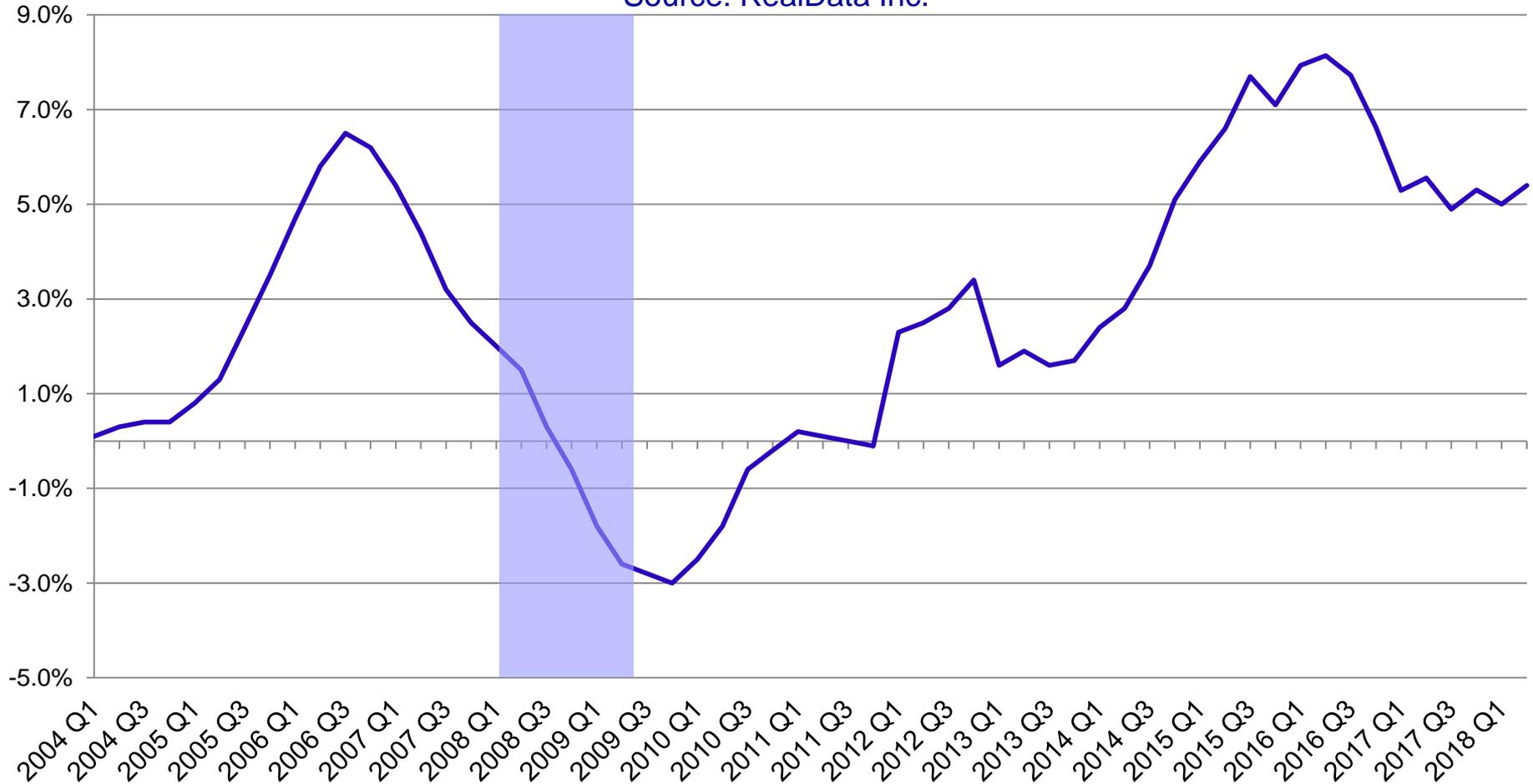


Greater Phoenix Multi-Family Average Rent Percent Change a Year Ago

2004 – 2018*

Source: RealData Inc.

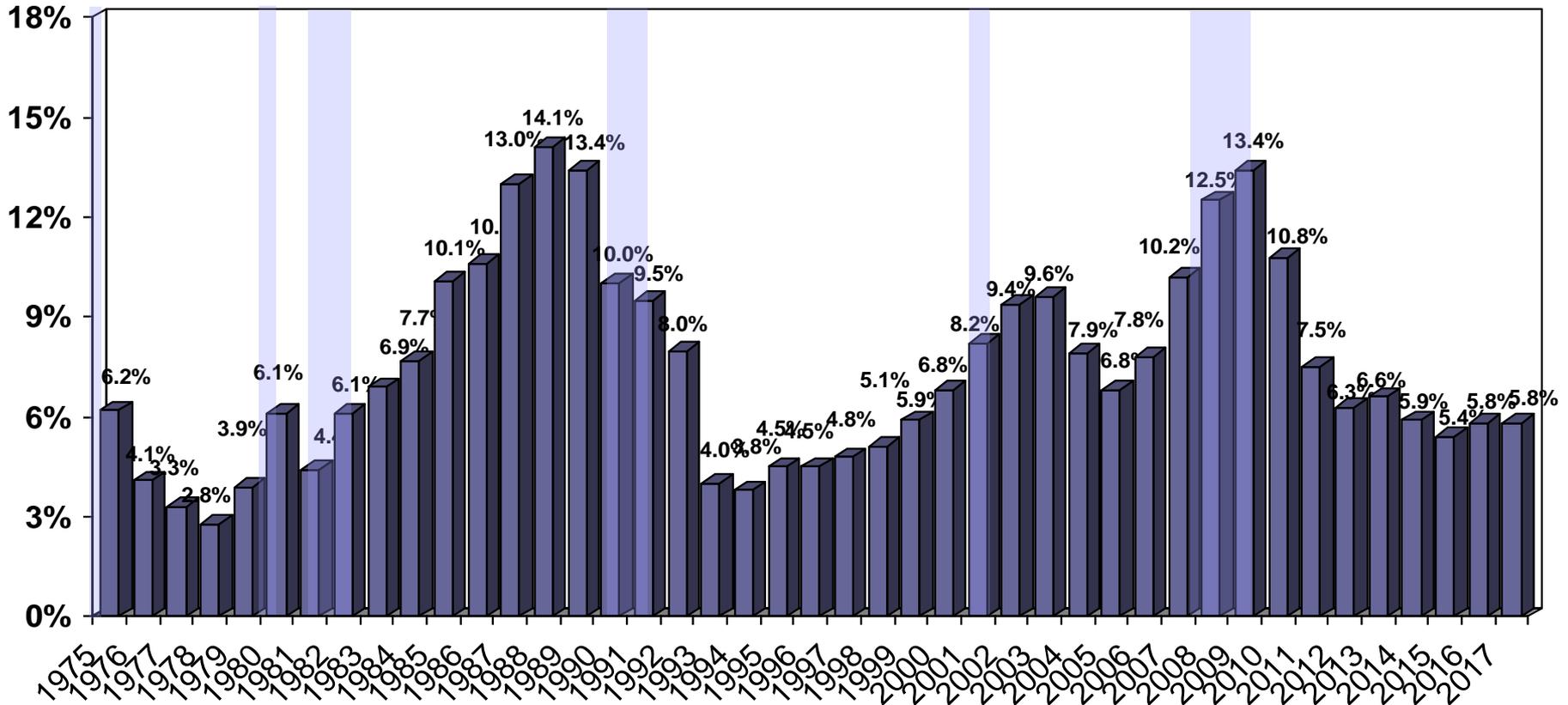
Recession Periods



Multi-Family Year-End Vacancy Rates Greater Phoenix County 1975–2017

Source: ASU Realty Studies / Berkadia**

Recession Periods



**Data prior to 2005 is from ASU



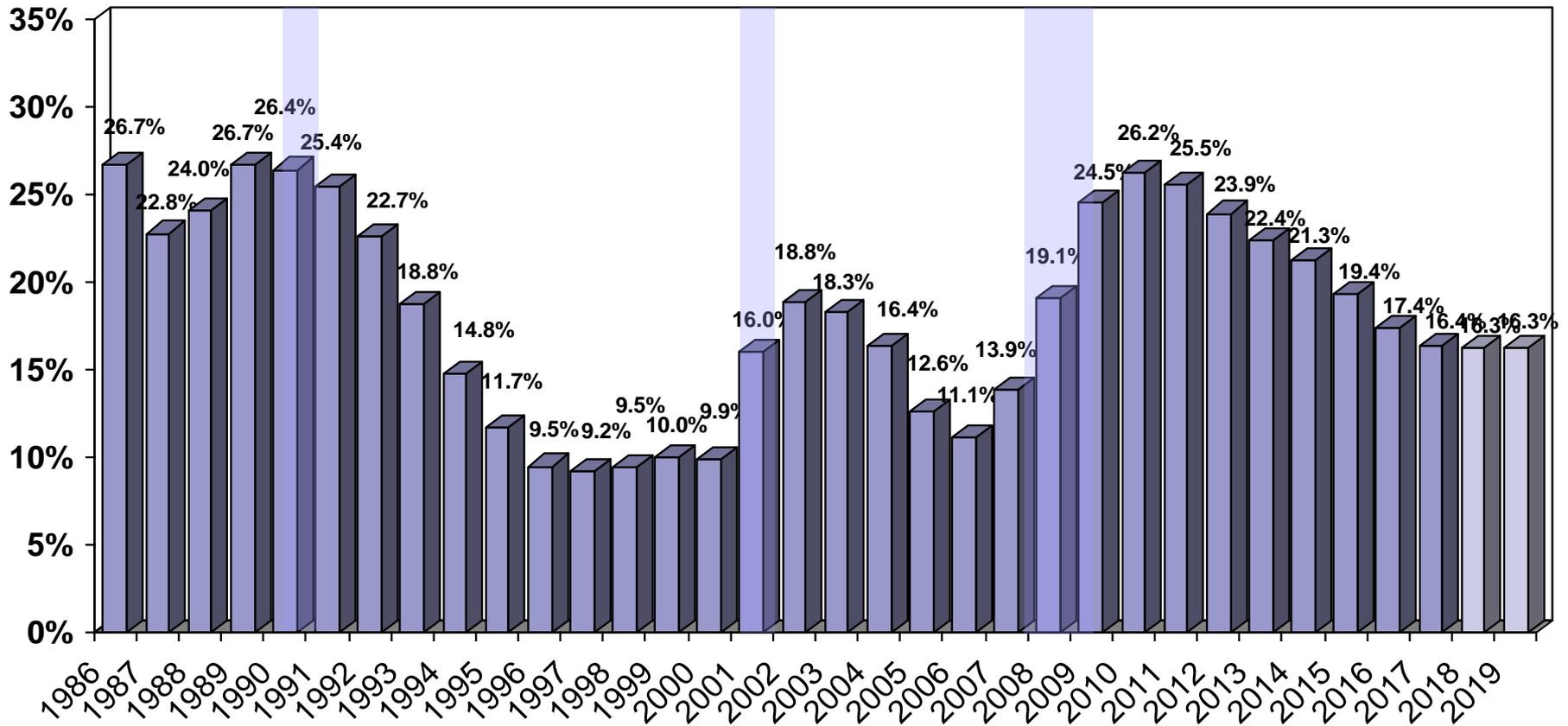
OFFICE



Office Space Year-End Vacancy Rates Greater Phoenix 1986–2019*

Source: CBRE

Recession Periods



*2018 & 2019 are forecasts from CBRE.



Greater Phoenix Office Market*

Source: CBRE

Year	Absorption (sf)	Chg in Inventory (sf)
2005	3,119,293	7,987
2006	3,245,888	2,320,302
2007	1,500,704	4,905,374
2008	(603,112)	3,402,646
2009	(667,329)	1,798,415
2010	233,670	2,011,404
2011	1,857,433	3,144,910
2012	2,020,529	973,282
2013	1,721,366	(35,566)
2014	1,816,411	1,107,906
2015	3,704,039	3,763,828
2016	3,219,853	1,045,155
2017	2,839,559	1,912,217
2018**	897,284	618,824

*All Leased multi-tenant space greater than 10,000 SF.

**Data through the second quarter 2018



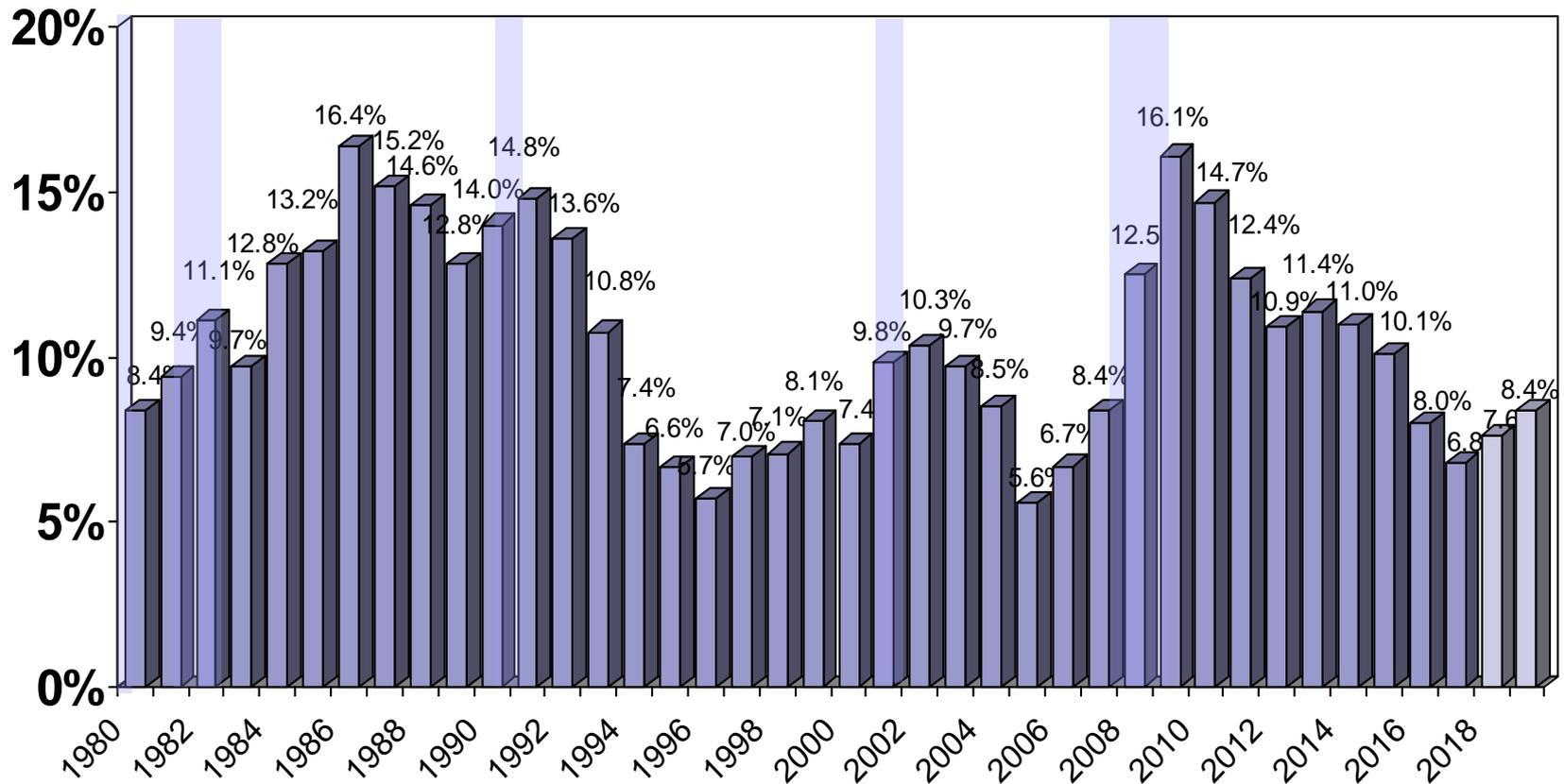
INDUSTRIAL



Industrial Space Vacancy Rates Greater Phoenix 1980 – 2019*

Source: CBRE

Recession Periods



Greater Phoenix Industrial Market

Source: CBRE

Year	Absorption (sf)	Chg in Inventory (sf)
2005	12,361,368	7,072,477
2006	6,179,533	7,829,959
2007	8,359,835	13,914,181
2008	629,838	13,467,215
2009	(4,649,352)	4,753,218
2010	4,455,097	2,451,202
2011	7,696,277	1,954,037
2012	6,093,132	3,358,724
2013	8,783,982	8,902,571
2014	6,214,680	6,791,313
2015	7,046,663	3,966,434
2016	9,497,677	5,136,644
2017	9,898,883	6,988,240
2018*	4,278,639	3,490,669



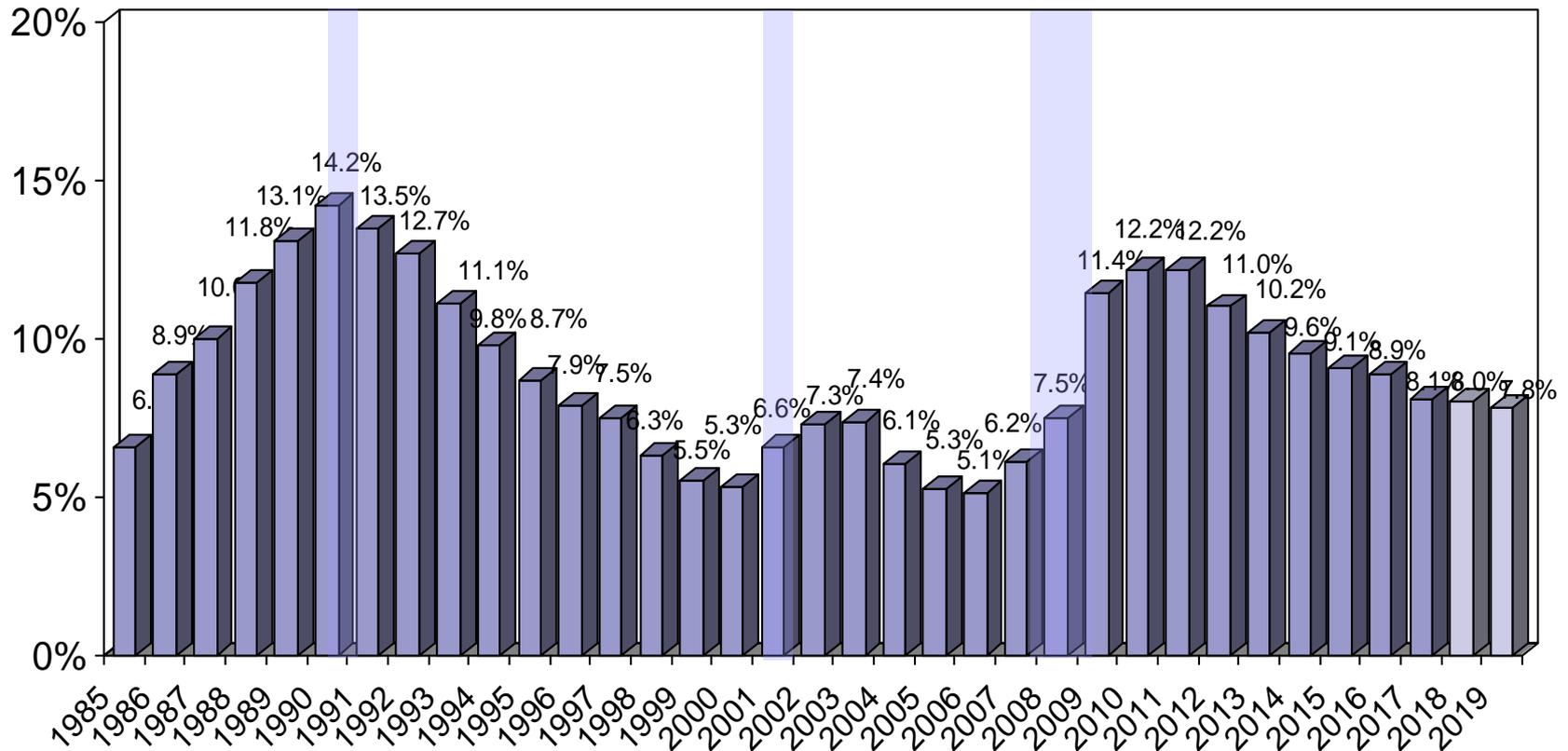
RETAIL



Retail Space Vacancy Rates Greater Phoenix 1985–2019*

Source: CBRE**

Recession Periods



*2018 & 2019 are forecasts from CBRE

** Data prior to 1992 is from Grubb & Ellis



Greater Phoenix Retail Market

Source: CBRE

Year	Absorption (sf)	Chg in Inventory (sf)
2005	6,708,155	6,248,789
2006	5,244,597	4,582,618
2007	9,409,985	11,104,865
2008	3,395,986	6,229,205
2009	(1,117,100)	4,405,985
2010	(75,352)	902,380
2011	(152,647)	24,543
2012	1,879,005	184,932
2013	1,579,202	(325,959)
2014	1,487,313	(49,225)
2015	1,150,192	164,859
2016	1,321,833	1,204,766
2017	1,039,989	336,152
2018*	(112,444)	590,123

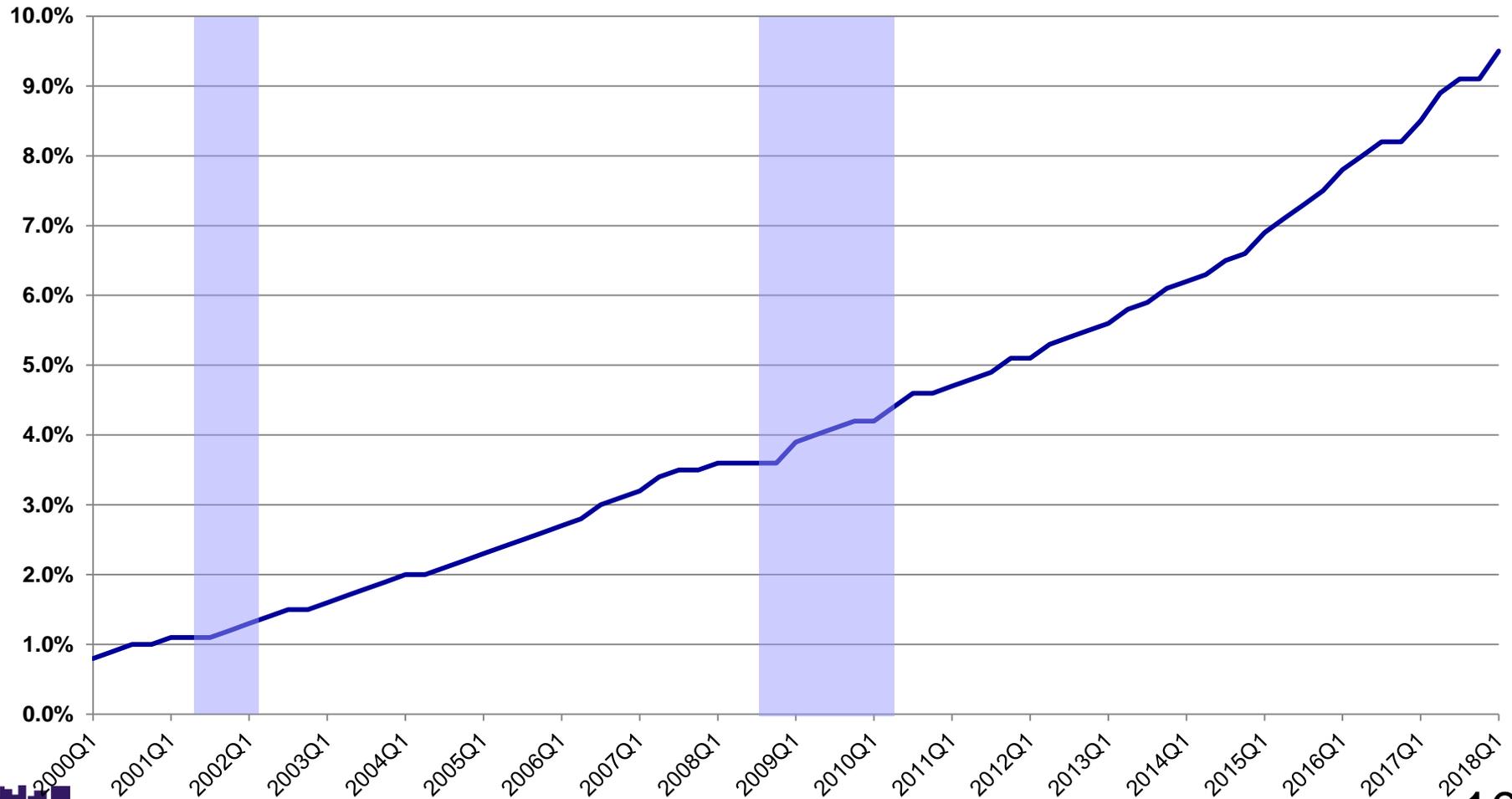


E-Commerce Retail Sales as a Percent of Total Sales

2000 – 2018*

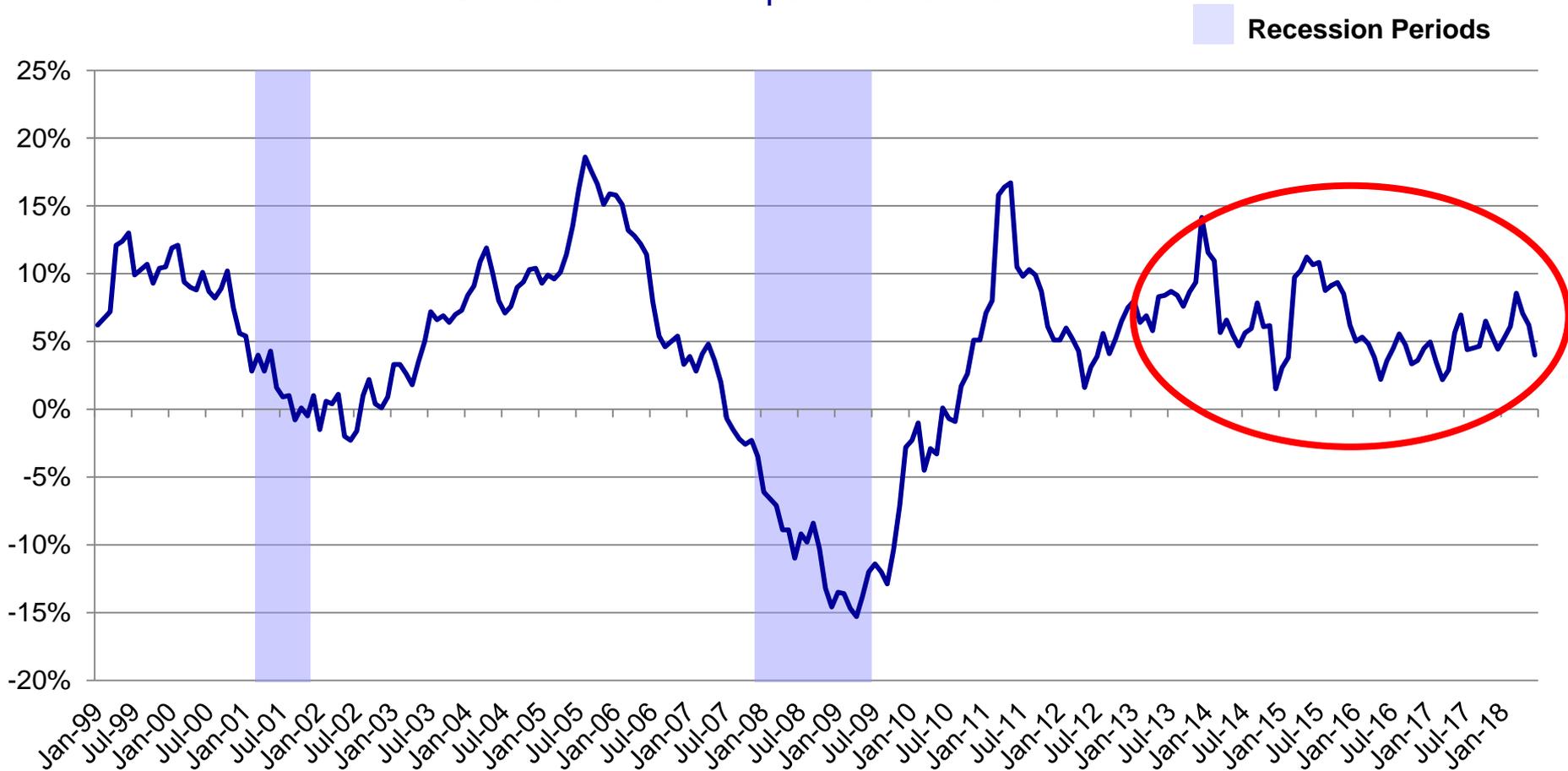
Source: U.S. Census Bureau

Recession Periods



Maricopa County Retail Sales Percent Change Year Ago* 1999 – 2018**

Source: Arizona Department of Revenue



*Data through June 2018

**3-month moving average

Note: January 2010 and March 2010 retail sales are estimates.



Overall Conclusions:

Rate of growth likely to slow somewhat in 2019.



**Nothing indicates an
imminent recession.**

